AN ANALYTICAL MODEL FOR DEVELOPING OBJECTIVE MEASURES OF AIR CREW PROFICIENCY WITH MULTIVARIATE TIME SEQUENCED DATA VOLUME II. COMPUTER PROGRAM DOCUMENTATION

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> > Brian D. Shipley, Jr. Army Research Institute

ARI FIELD UNIT AT FORT RUCKER, ALABAMA



U. S. Army



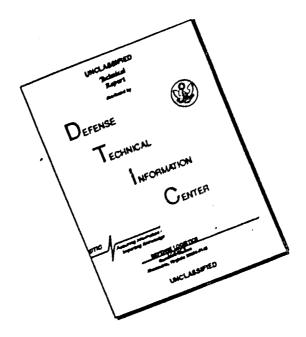
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This volume contains computer programs used to ana								
procedures for the use of the programs, and example								
are the result of a theoretical investigation of a	narytic methods for defiving							
differential weighting functions from preselected samples of multivariate,								
time sequenced observations of aircrew performance. The research effort resulted in an analytic model which could be used to prepare and to further								
investigate differential weighting functions as a means of establishing								
relationships between time sequenced observations	of sircrew performance (over)							
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#### INTRODUCTION

Volume II, Computer Program Documentation, was prepared under Contract No. MDA 903-80-C-0198, entitled "An Analytical Model for Developing Objective Measures of Air Crew Proficiency with Multivariate Time Sequenced Data." This second volume provides documentation of the basic computer programs used in the processor termed "Measurement Analysis Processor" (MAP).

The computer programs were designed to make extensive use of subprograms so that common functions used in the various programs could also use common subroutines. Furthermore, the structured approach to programming was used – to the degree that the unstructured FORTRAN language would permit. However, in the initial programming efforts limited use of the "go to" statements was maintained; but it was necessary for program variation to insert some "go to" statements which of course complicated the program structure. We hope this additional complication will not lead to difficulties in using or modifying the programs.

This volume contains programs used to analyze the subject data, procedures for use of the programs, and example outputs.

On the procedure page, the user inputs are examples from data files at PMA.

The computer used is an LSI/11, utilizing floppy discs containing programs and data. The DK: referred to on the procedure page corresponds to the disc drive used by the machine operator.

The subscripts indicating footnotes on the procedure page do not appear on the screen as computer outputs.

The Property of the Control of the C

```
PAGGAMM "INTHEX"
 PURPOSE: COMPEN C-58 DATA FILE TO MEXIDECIMAL MOTATION
  FAID FORMA DATA FOR TRAVENTISSION OVER PHONE LINES
  (ISFR SPECIFIES FILE NOVE, BEGINNING LOCATION, AND
C HAPPER OF HLOCKS TO PROCESS
  NEERI SYSCONXEYS.F
      DIMENSION INDUF(15248), IOUTB(588), NINE1(8),
      1
                 1HT98(257)
       IMEGERMA IF IPOS
       1881,1891,1881,1881,1801,1801,18E1,18E1,
                  ^185,^115,^125,^135,^145,^155,^165,^175
                  185/195/185/185/105/105/105/1E5/1E5
                  /20/5/28/5/22/5/23/5/24/5/25/5/26/5/27/5
                   <u> 1287 (1297 (1287 (1287 (1207 (1207 (1267 (126</u>7
                   43845,43845,43245,43345,43845,43845,43845,438
                   /38/5/39/5/38/5/38/5/38/5/30/5/30/5/3E/5/3E/5
                   ^48^,^4}^,^42^,^48^,^44^,^45^,/46^,^4?^.
                   485,495,485,485,405,405,465,4E5,4F
                   1581/1511/1521/1531/1541/1551/1581/1571/
                   /58/1/59/1/58/1/58/1/50/1/50/1/5E/1/5F/1
                   ^68^,^61^,^62^,^63^,^64^,^65^,/66^,<sup>-</sup>767^,
                   1681,1691,1681,1681,1601,1601,16E1,16E1,
                   17857785772577357745775577857775
                   イア8イ。イア9イ。イアβイ。イア8イ。イアᢗイ。イアロク、イアEイ。イアチイ。
                   *88*, *81*, *82*, *83*, *84*, *85*, *86*, *87*,
                   1881,1891,1881,1881,1801,1801,18E1,18E1,
                   1981,1911,1921,1931,1941,1951,1961,1971.
                   1981, 1991, 1981, 1981, 1901, 1901, 1961, 1961,
                   "(98%-1917--192%-193%-194%-195%-196%-197%-
                   "ABC", "ABC", "ABC", "ABC", "ABC", "AEC", "AEC",
                   "88", "81", "82", "83", "84", "85", "86", "87",
                   1981,1991,1991,1981,1901,1901,1961,1961,
                   1081-1011-1021-1031-1041-1051-1061-1071-
                   1081,1091,1081,1081,1001,1001,10E1,10E1,
                   1081, 1011, 1021, 1031, 1041, 1051, 1061, 1071
                    1081, 1091, 1081, 1081, 1001, 1001, 10E1, 10E1,
                    'EB', 'E1', 'E2', 'E3', 'E4', 'E5', 'E6', 'E7',
                    'E8', 'E9', 'E8', 'E8', 'EC', 'ED', 'EE', 'EF',
                    'F8', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7',
                    'F8', 'F9', 'F8', 'F8', 'F0', 'FD', 'FE', 'FF', 'GF',
 C NEWS IMPUT FILE
        WITE(1,1818)
        RFAD(1,1011) (NNE1(1),1=1,8)
  t finter starting word number
        WRITE(1,1838)
        READ(1,1101) JEJPOS
 \vec{	au} entire number of blocks (#blocks ( = 29) to repo
        級37F(1,1946)
        MERD(1,1841) NUMBLK
        HIPSHI HIPELK+254
  COPEN INMUT FILE
         (9) SP(HOS (KOMERD, NOVE), 16,1, TYPE1, ICCDE!)
         IF(ICODEI,NE.8) GO TO 388
   Pristing input file to reginging word location
```

#### Program Listing INTHEX (Continued)

```
C AND NEAD IN MORDS HELEFIELD
      THE PROPERTY (KAREH + PREEL ), LOC(INDUF), NUMBER, IF IPOS,
     1
                  NO HOUSE
      FCIPCOL.N. (0) 60 10 500
C.CLOSE INFUT FILE
      ORL: SRCH$$ (K$CL05, 0, 0, 1, 0, 1000E1)
      IFCICODEL.NF.(0) (6) 10 689
C PROCESS INPUT MONDS AND UNITE LISTING
      WITE(1,1856)
      MERD(1,1951) 183
      IFCIRIT. No. (1607) 60 30 506
      00 200 3=1.HLM416
      00 100 3=1,254
      (4(+)
       INTURK=INEUR (L)
       ORL INTENSIFIER DRIVER THEXE, THEXE)
      1]=(3-1)4241
       124.1+1
       MULB(III)=IHEXI
       100円の20日後に
  100 CONTINE
       WITE(1,1200) (100F(13)-13=9,508)
  200 CONTINE
       60 10 900
  300 CONTINE
       WITE(1.1110)
       RO TO 988
  500 CONTINUE
       網川(1.1139)
       60 70 460
  666 (MI) ME
       Wilte (1,1140)
       80 TO 900
  SHE CINT INE
       CHL FXII
 1010 HORSER (* NEVE INPUR EXCE*)
 1011 FORMAT (802)
 1839 FORMAT (* ENTER REGISTRIG NORD (START=NORD(B))*)
  1031 FORMET (18)
 1848 FORMATIC' ENGER HARRIER OF BLOOKS TO READ (1 4 = # PLOOKS 4 = 290.1)
 1641 FORMAT (18)
 1858 FORMAT C'EMPER (%) 10 STANT TRANSMISSION AFTER?
            - MITTING FUNCTION NEW #4 AND TRANSMISSION/
     1
             " (CONTACT IS RECLESTED!)
 1951 FORMER (FEZ)
 1119 FORTHT (* OPEN FHILLE FOR INPUT FILE*)
 1138 FORPHO (* MOST LUTURENE FAILLED FOR INPUT FILE!)
 1148 FORMATIC CLOSE FAILED FOR IMPUT FILED
 1200 FORMAT (4662)
      80
       SERCUTINE INTHE COLD DRIVER, THEXT, THEXT
       DIPENSION INTRODS 18:180 160
       FCINTURGEC.
       181TS(16)=€
                                                                    3
   FORWALLS :
```

A THE STREET STREET

# Program Listing INTHEX (Concluded)

```
MILLI=1985(1)FILE
    10 200 ]=1,15
    12=16-1
    POSZ=2++(12-1)
    ICHK=1HOLD-1POW2
    FCICHK.LT.0) 60 10 100
    181T5(12)=1
    HULD=1CHK
    60 TO 200
100 CONTINUE
    18175(12)=0
200 CONTINUE
    10 460 l=1.2
    J57FE(]=(]-1)*E(+)
    JSTOP=JSTPRT+7
    MOCK=6
    00 300 J=J516K1, J510P
    #2=1-1-(1-1)*8
    JF(JB)TS(J).E0.1) JROOR=JROOR+2**J2
300 CONTINUE
     JADOK=JADOK+1
     JECL.EQ.1) THEX2=THTABCTHOOR)
     JFC1.EC.2) JHEXI=JHTRBCIADOR)
400 CONTINUE
     60 TO 600
500 CONTINUE
     )推划=1用他(257)
     推汽制用他(2%)
 FEE CONTINUE
     KETLEN
     田
```

A

# Subroutine INTHEX

PHOE (88)

```
FORTREM IV
                HB1A-1
                          FRI 01-1997-81 01:43:36
            SURROUTINE INTHEXCITING, INTURE, THEXT, THEXZ)
            DIMENSION INTRB (257), 18175(16)
            IF(INTUFR.EQ. -32768) 60 10 500
            1BITS(16)=0
            IFCINTUFR.LT.0) 18175(16)=1
            INOLD=IABS(INTUAR)
            DO 200 1=1,15
616
            12=16-1
Oti
            IPO\(2=2++(12-1)
1012
            ICHK=IHOLD-IF(Q)
6013
            JFCICHK.LT.0) 66 TO 100
615
            IBITS(12)=1
2016
            IHOLD=ICHK
017
            GO TO 200
0018
        100 CONTINUE
1019
            IBITS(12)=0
1123
        200 CONTINUE
6621
            DO 400 I=1.2
6822
            JSTART=(1-1)*8+1
23
            JSTOP=JSTART+7
0024
            1800R=6
25
            DO 300 J=JSTART JSTOP
626
            J2=J-1-(1-1)48
1027
            IFCIBITS(3).E(8.1) INDDR=INDDR+24+3_
1029
        388 CONTINUE
IRDOR=IHOUP+1
1233
            [7(1.EQ.1) THEXQ=THTHB(1HDOR)
6833
            IF(1.EQ.2) THEMI=THTHB(1HODR)
E
        400 CONTINUE
0036
            60 10 666
6637
        588 CONTINUE
            IHEXI=IHIHE(25)
            IHEX2=IH166 .56
        600 CONTINUE
            RETURN
            EHD
```

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Table 1

# INTHEX

Integer to Hexidecimal								
Purpose: Note:	,							
Со	mputer Output	User Input						
·								
		·						
<del></del>		<u> </u>						

The second second

```
FORTERN IU
                 HB1A-1
                           FRI 01-HRY-81 00:54:07
                                                                   PROE 001
      C PROGRAM "HEXINT.FOR"
      C PURPOSE: CONJERT HEXIDECIMAL DATA FILE READ FROM DIALCOM
      C BACK TO BINARY UNFORMATTED (PROGRAM INTHEX AT DIALCOM)
      C CONTRACT C-58
      C ARMY RESEARCH INSTITUTE
      C 06-AUG-80
            DINENSION IDATA1(250,4), IDATA2(250), IHTAB(16,5), IHEX(4)
             LOGICAL*1 IDATAL HATAB, INEX, IGG
             DRTA_IHTRE//10/5/11/5/2/5/3/5/44/5/5/5/6/5/7/5
                         18/5/19/5/18/5<mark>/18/5/10</mark>/5/10/5/1E/5/F/5
                        0.0.0.0.0.0.0.0.N.1.1.1.1.1.1.1.1.1.
                        0.0.0.0.1,1,1,1,1,0,0,0,0,1,1,1,1,1,
                        0.0.1.1.0.0.1.1.0.0.1.1.0.0.1.1.
                        0.1.0.1.0.1.0.1.0.1.0.1.0.1.0.1.0.1/,
                  166/1617
             PRUSE LINGERT 1/0 DATA DISC IN UNIT ONE (DK:) AND HIT RETURN!
6885
             WRITE(7,7010)
8886
             CRLL RSSIGN(2)/1/1-1/7RD0(1/NC1/1)
8007
             URITE(7,7020)
             CALL ASSIGN(3/11/1-1/1NEW//1NC1/1)
1008
6889
             RBIGN=(-32768.0)
1010
             IBIGH=INT(RB1GI)
6611
             IOUT=0
6612
             IH⊨0
6613
             IDUM1=1234
6814
             10UH2=4321
6015
             IDIPS=568
0016
             JDU94=(:
0017
             IDUNG式包
1818
             IDUNE = !
6019
         200 CONTINUE
1828
             READ(2...t)(2.5村声500) ((IDATA)(1.J)(J=)(4)(J=),250)
6621
             IN=IN+)
8822
             00 210 (#) 56
6623
             THEXCOSETS (1941)
             JF(JHE)(+1 ) 1 6/1 60 TO 265
8824
             IHEX(2 (=315° ± 152)
8826
             IMEX(3)=116.00 (1.0)
IMEX(4)=1.60.00 (1.4)
1827
6828
8829
             CALL HELLING AND AND HEX, INTURK)
6038
             IDATH2:13 TO 18
0831
             60 10 .....
6632
         285 CONTINUE
6623
             IDATA2 1 55
8834
         218 CONTINA
8835
             WRITE(") | 1787 | 17802 | 10085 | 10084 | 10085 | 10086 | (178162 | 1774 | 1780)
6836
             1001=1001+1
  137
             WRITE(Toolse 135)
 8538
             URITE
                             January 1971=152500
                                                                                 Copy available to DTIC does not
6639
             GO TO 181
                                                                                  permit fully legible reproduction
         500 CONTINE
 1041
             CPLL LINE
 6942
             OFFIL (1)
 6943
             URITE: U. 1600
```

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# Program Listing HEXINT (Concluded)

I	FORTR	NN IV H018-1 FF1 01-1947-81 00:54:07	PRGE 902
I	9944 9945 9946	7010 FORMAT(4 NAME 1)8403 FILE (ASSIGN TO DK: )47)	
I		7828 FORMATICA NAME GOTEST FILE (ASSIGN TO DKE)(4) 7838 FORMATICA INPUT RECORDS: 4.17/ 1 4 OUTPUT RECORDS: 4.17)	
I	9949 9951	7000 FORMATICA BLOCK: (1)14) 7650 FORMAT(1X/1017) END	
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		i i	
I			
I			
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I			
I			
I		•	
ſ.			
1.			
1.			
1	:		8

# Subroutine HEXINT

PHOE 801

	FORTROW IV	HD1A-1 FRI 01-1781-81 00:54:21
I	0001 0002 0003	SUBROUTINE HEXIST CHARBATHEX, INTORLO DIMENSION THATACAGO, S.A. THEXCADA IBITS (16) LOGICAL*1 THATACAGO
I	9063 9063 9064 9065 9066	L=17 00 468 1=1.4 00 160 3=1.16 BFCHEX(1/LEG.18THS(J/1)) 60 10 200
I	<b>600</b> 9 100 <b>60</b> 10 <b>60</b> 11 200	CONTINUE J=16 CONTINUE
I.	<b>98</b> 12 <b>98</b> 13 <b>98</b> 14 <b>98</b> 15	JSNE=J 00 360 K=2/5 L=L-1 IBITS(L)=HTM= 150(E.K)
1.	<b>60</b> 16 388 <b>60</b> 17 468 <b>60</b> 18	CONTINUE CONTINUE INTURL=0
1.	0019 0028 0021 0023 500	DO 568 M=1/15 M1=N-1 IFCIBITISMOLECULE DITURL=INTURL+2*+111 CONTINUE
	9824 9826 9827	IFCIBITS(16).50.1/ INTURL=(-INTURL) RETURN END
I		

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Table 2

# HEXINT.FOR

Hexidecimal to Integer							
Purpose: To convert a hexidecimal data file to an integer data file.							
Computer Output	User Input						
	● Run HEXINT						
PauseI/O data disc in unit one (DK:) and hit return.	(CR)						
Name input file (assign to DK:)	*DK:TTEST3.DAT						
Name output file (assign to DK:)	*DK:TTEST4.DAT						
	·						
•							

# Program Listing FMERGE

T. SAMMANNET . . .

```
HB19-1
                           FR) 81-MM-81 88:59:45
                                                                 PROE OC!
      C PROGRAM "FRENCE.FOR"
      C PURPOSE: MERCE C-50 DATA FILES BY STUDENT NUMBER
      C CONTRACT C-58
      C MANY MESERACH INSTITUTE
      C FORT MICKER FIELD UNIT
      C 26-JLY-00
            DIMENSION IDATA(258)
            PRISE 'INSERT COTPUT DATA DISC IN UNIT ONE (DK:) AND HIT RETURN
            WITE(7,7826)
            OPLE PROSTONICS (174-1) (MENY) (MCC) (1)
            WRITE(7,7060)
            REPO(5,5660) 1583CT
            1001=0
            3H-6
        100 CONTINUE
            WITE(7,7011)
1311
            NEED (5), 5620 TERESH
212
            IFOFINSH.Ed. 1: 50 To 900
            PRUSE (1956): PPUT DATA DISC IN UNIT ZERG (SVI) AND HIT RETURN
6814
6015
            WITE(7,701)
116
            CRLL AGS1044.
                           - 3-13/K00/3/NC/31)
6017
        200 CONTINUE
6018
            REPORCE, ENGINEE IN CONT. (DUMS.) (DUMS.) (DUMS.) (DUMS.) (DUMS.)
           1
                                  JIMM(1), J=1,2503
0019
            I#I#1
8228
            WRITE(7,7100 15, 1007, 10414(2), 10414(227)
621
            IFCCIDATA(27.7E.1353(1).OR.(1DATA(227).NE.13E3(1)) 60 TO 200
0023
            URITE(3) IDAM (1980) (IDAM) IDAM) IDAMS, IDAMS
                           Halladib. 1=1, 250)
824
            10UT=10UT+1
1225
            GO TO 200
1226
        388 CONTINLE
277
            CALL CLOSE(2)
2828
            GO TO 160:
6229
        988 CONTINUE
OPLL CLOSE :
            WRITE(7),700a HIJ TOUT
1831
            STOP "END OF PROGRESS FIRE FOR
66333
       5828 FORMAT (17)
6634
       5060 FORMAT (17)
222
       7010 FORMATION NEWS (SPUT FILE (RESSIGN TO SALE) /)
       7811 FORMAT (" ENTER & ZERO) TO READ ANOTHER FILE .
                   1 OR BIGGS 1 (ONE) TO CLOSE OUTPUT FILE )
       7020 FORMATION NAME OFFICE CASSIGN TO DRIVE OF
6637
       7858 FORMATCA INPUT RELORDS: 15,177
           1
                 1 007FU FE (440S: 1517)
       7060 FORBITC' ENTER STREET HUNDER (1)
       7168 FORIFIT (1X, 16, 111, 16, 1.0, 17, 1X, 17)
            EIO
                                                                     11
```

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# FMERGE.FOR

Merge Data Files by Student Number							
Purpose: The program FMERGE is used when a subject's data is located in two different areas (i.e., 2 different discs). FMERGE will bring both sets of data together to form a single subject file.							
. Computer Output User Input							
	●Run FMERGE (CR)						
Pause - Insert output data disc in unit one (DK:) and hit RETURN	(CR)						
Name Output File	*DK:TTEST3.DAT (CR)						
Enter Student Number (I) <sup>1</sup>	20935 (CR)						
Enter 0 (zero) to read another file or enter 1 (one) to close output file	(CR)						
•	•						

1 Integer

#### Program Listing DFLIST

PRGE 801

```
FORTBOOK IV
                H01A-1
                          FRI 01-MW-81 01:10:42
      C PROGRAM *DFLIST.FOR*
      CLIST THE C-58 DATA FILE
            DIMENSION X(29, 10)
            INTEGER X
            HELCCX=0
            PRUSE "INSERT DATA DISC IN DK: AND HIT RETURN"
            WRITE(7,7000)
            CRLL PSSIGN(2) (1) -1, (RDG(1) (ND(1))
            WITE(7,7810)
            REPORT, 7011 / JUNIT
        100 CONTINUE
            CRLL INPUT(Y) NELOCK/NERK(,2)
6011
            JF(PPRK.EQ.-2" 60 TO 999
            DO 200 1=1-29
113
            WITE(1UNIT, 2006) NBLOCK, 1, (X(1, J), J=1, 10)
6614
6915
        200 CONTINUE
1016
            GO TO 100
9017
        999 CONTINUE
1818
            STOP
       7000 FORMATIC! NAME 19900 FILE: 1/2)
6619
8828
       7010 FORMATION ENGINEER FOR LISTING SOUTH A
8821
       7011 FORMAT (17)
8822
       7020 FORMAT (1 15/13/13/13/14/17)
0023
            END
```

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#### Subroutine INPUT

```
FORTRAM IU
                      HBIA-1
                                FRI 31-1964-81 01:10:54
                                                                      PAGE 601
                  SUBROUTINE INPUT (NUMELOCKUMERKUN)
                  INTEGER DATA: X
                  DIFFESION DATA(258),2(29,10)
                  IP=0
                  IPL=#
                  00 18 J=1,16
                  00 10 1=1,29
                  X(1,J)=0
               10 CONTINUE
                  MIK=0
      1100
                  NERIXALERISTO (SERSEO) DUMI, NAVE (DUME, DUMA, DUME, DUME)
                                          (DATA(1), 1=1, 250)
                  NELOCX=NEL((1)+1
      6813
                  K=0
            C HRIN LOOP
                  DO 100 J=1, in
                  K=K+2
            C STUDENT NUMBER
      116
                  X(LJ)=Diffici
            C PERIOD
      8817
                  K=K+2
      1818
                  X(2,J)=(0)((m):mi::),256)
            C SEGRENT HUBER
      1019
                  K=K+10
                  00/20/1=1.1
      6621
                  K=K+1
                  MIKHLO (DATA (E.S.)
      1122
      6223
                  X(3,3)=X(0,3)+H(1);
      8824
                  DATACECHIATE CONTRA
      125
               28 CONTINUE
      0026
                  K=K-12
               38 LPS=04160 155-15
                  JFCJPL.1.1. F = 66-70-48
                  IP=IP+25e
                  GO TO 38
               48 IPL=LPS
                  X(4, J)=LPS
            C STICK X (ROLL HARD) BUILDING IS INCHES TIMES 100 NACES.24
                  00 50 1=5.6
      622
                  Y=FLORT (DATA: ) - (3.619044+151GN(5),DATA(K))/18.8
                  X(L,J)=Bff(C)
               50 CONTINUE
            C STICK Y (PITCH INPUT. MORETHS IS INCHES TIMES 100 MAN=6.333
00 60 1=9.1.
                  K=K+1
                  Y=FLOAT (DATE) - +0.019020+131GH(5)/DATA(10)//10.6
                                                                               Copy available to DTIC does not
                  X(I,J)=INI+/
                                                                               permit fully legible repreduction
               60 CONTINUE
                   00 70 1=111
                   K=K+1
             C SIDE TREK STAFF Staff
                                                                           14
                  MTK=MCDx(r=1)
                   DATACK SHOW
```

\* STANKES.

#### Subroutine INPUT (Continued)

a seminar.

```
FORTRAN IU
                                           HB1A-1 FR: 01-MAY-81 01:10:54
                                                                                                                                                                              PHGE 002
                                X(26, J)=X(26, J)+100:41TK
                C PEDAL POSTION SOFLING IS INCHES TIMES 100 MAY=3.25"
                                V=FLORT (DRTR(K))+0.(009919+151GN(5.DRTR(K))/10.0
                                X(L))=IMI(Y)
                       78 CONTINUE
                C PITCH INDICATED MANIFER DEGREES, SCALED TIMES 100
                                DO 88 1=15.16
                                K=K+1
                                DATACK)=DATACK)-HXD(DATACK),2)
                                Y=FLORT (DATA(K))+0.54935+151GN(5,DATA(K))/10.0
                        88 CONTINUE
                C ROLL INDICATED MRC=30 DEGREES, SCALED TIMES 100
                                00 98 1=17.16
                                K=K+1
                                DATACK)=(with: 1 = MLCONTACO) 2)
                                Y=FLOAT (DATR: Y ) := 0.54932+151GN(5,DATA(K))/10.0
                                 X(LJ)=INT(P)
                        98 CONTINUE
                 CALTITUDE
                                 K=K+1
                                X(19, J)=(和语言)
                C TORQUE 0 TO 100 Feb.
                X(28, 1)=D61/r ( ) fe
C A1RSPEED MR(=146. * ) bolish SCALED TIMES 100
X(21, 1)=64/03 ( ) 1 - () ( ) 256)
                CHERDING 8 TO 360 THITSES! SCHLED TIMES 130
                                 K=K+1
                                 X(22,J)=FL0P1 1900 -- 0.54932+1316H 500414-0.00 10.00
                 C VERTICAL VELOCITY
                                 K=K+1
                                 X(23, J)=D60H1
                C WAN B TO 14.9 (East). RELECTIONES 100
                                 K=K+1
                                 C COURSE DEVIATION
                                 K=K+1
                                 XC25.10=filther and restlicted building the filther and the control of the contro
                 C SIDE TASK NUMBER
                                 K=K-21
                                 X(26, O=)) Lo. Hill (film(K), 25e)
                C GENERATOR RECOVER THE XC29, JD=001a 1 Jan
                 C STATION SELECT THE
                                 K=K+22
                                  X(27, J)=061H
                 C NIKE RESPONSE THE
                                  X(28,J)=MC(-1+i+ - - 256)
                        100 CONTINUE
                                  MMK=18
                                  RETURN!
                                                                                                                                                                                     15
                         501 CONTINUE
```

# Subroutine INPUT (Concluded)

FORTREN IV PHGE 083 HB1A-1 FRI 01-1901-81 01:10:54 RETURN 601 CONTINUE MARK=0 RETURN 80

Table 4

# DFLIST.FOR

List of Data File								
Purpose: Reads the data file and presents the information on the CRT.								
Computer Output User Input								
	● Run DFLIST							
<b>⟨</b> CR⟩								
Pause Insert data disc in DK: and hit return								
	(CR)							
Name input file	*DK:F20935,DAT							
	(CR)							
Enter unit number for listing (6,7): 1	6							
(0,1).	(CR)							

1<sub>6</sub> = line printer

7 = teletype

E

a sometimes .

1												
,	1	200	2005	2005	20005	20005	20005	20935	20935	20935	20935	Subject No.
<b>1</b>	2	3	3	7,	7,	7,	7,	3	7,	3	3	Session No.
1 1	3	8	Ą	Ą	(1)	A	P	9	9	9	Ą	2031011 1101
<b>4</b> > 1	4	81	83	85	87	89	91	93	95	97	99	
	5	-209	-213	-213	-766	-178	-159	-160	-146	-152	-158	Stick X Position
1	6	-212	-213	-214	-210	-180	-159	-158	-151	-153	-159	
1.1	· 7	-213	-214	-213	-210	-166	-159	-156	-146.	-155	-156	•
1	8	-212	-213	-212	-177	-159	-159	-156	-152	-157	-159	
_ 1	9	334	334	777,	277.	<b>V</b> Z.	727.	H.	358	341	343	Stick 4 Position
1,1	10	222	334	777.	:77;	377.	321	366	364	341	343	
1	11	222	22.8	.334	127	VI.	314	(97,	361	341	349	
3 1	12	334	334	<b>N</b> Z	325	72.	777.	392	341	341	338	
] 1	13	-37	-37	-,34.	-36.	-36.	-34.	-,%	-36	-%	- <i>₹</i> ¢;	Pedal Position
• • •	14	-37	-37	-36	-36.	-36	-36	-36	-36	-36	-36	
_ ]	15	559	697	775	775	773	615	592	598	266	224	Pitch Angle
1	16	637	745	784	757	667	593	777.	426	237	171	
- L	17	-568	-950	-1327	-1684	-1834	-1856	-2001	-2189	-2189	-2465	Roll Angle
	18 19	-758	-1141	-1514	-1847	-1859	-1913	-2100	-2128	-2318	~25%	
7		1528	1561	1599	1637	1671	1701	1727	1749	1764	1769	<u>Altitude</u>
	20 21	35 918	.75 3 <b>98</b>	77. 1493	77,	77,	77.	77.	<i>75,</i>	75	<u>75</u>	Torque
	22	15542	15387	14918	882 14383	\$ <b>?</b> \$	478 1 7050	882	894	912	942	Airspeed
T		1012	1178	1244		13730	13050	12363	11467	10713	9792	Heading
<b>.</b>	24	-45	-47	1299 -50	1182	1939	888	749	657	312	12	Vertical Velocity
	25	-2785	-2786	-7 <b>78</b> 7	-57. -2789	-60 -2792	- <del>(4)</del> -2795	-58 -2799	-58 -2 <b>86</b> 5	-56 2016	-56 2017	Yaw Angle
	25	-2160	-2100 A	-216i A	-7765 (1	-2172 (1	-2750 (1)	-7779 A	=7 <b>ल्ल</b> श	-2810 9	-2816 0	
1	27		e A	ν <b>Α</b>	n N	er Ø	e A	r) (1	9	n A	-128	
1	28	ě	9	8	'n	41 A	77 A	9 9	er A	ņ (1)	-126 Ñ	
	29		8	8	" A	" 8	Ä	e A	i, A	" A	e Ø	
1		•	•	•	,	4.	ξ,	•	•,		٠,	

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A Proposition of the Contract of the Contract

Burn Stranger

```
FORTRAN 1U
                                                                    PROE 001
                  HOUR-1
                             FK1 08-MMY-81 00:05:09
        C PROGRESS: "STRPLT.FOR"
        C PURPOSE 15 TO PLOT C-50 UPRIABLES ON LINE PRINTER
        CIDATE: JULY 26, 1988
        C ARMY RESEARCH INSTITUTE, FORT RUCKER
981
              LOGICAL*1 LHEAD, LPCHAR, LYTIT, LYSOAL, LXSOAL,
                         LYLINE, LYLINE, LURRO, IESCRP, LTY, LYUPL
              DIMENSION LPCHAR(100), IEONTA(29,10), LHEAD(60),
  1002
                         LYSCAL (101), LYLINE (103),
                         LURRE(16), TURLUM(16), LYTTT(108),
                        LYURL(104), INDEX(16), XMIN(16), XMRK(16),
                         RANGE (16)
              DATA LXLINE/124/.LYLINE/103445/.
                    LYSOPL/124/9+32/124/9+32/124/9+32/124/9+32/
                           124.9+32.124,9+32,124,9+32,124,9+32,
                           124.9+32.124.9+32.124/
                    LYURL/101/9432/111/101/8432/121/101/8432/
                           /3/1/10/1/8472/14/1/10/1/8432/15/1/10/1/8432/
                           /61.181.8432.471.481.8432.481.481.484.8<del>4</del>32.
                           19 (101)8+32 (11) (01) (01) (17)
                    LYTIT/45/02/1917/10/18/07X/0/1/075/07/0/P/0/E/0
                           1815 (C. ) 1815 (N/5) (T/5) 43#32/5
                    LUMPC/82-86-89-112-114-97-
                          84-118-104-122-121-5*42/-
                    TESO$9/27/JUTY/121/JURER/1641/J
                    THDEN 5-9-13-15-17-19-28-21-22-23-24-5+8/
               PRISE "PEROY LIKE PRINCER AND HIT CONTINUE"
   (11)
               PROSE THESEPT ONTO CLED THE UNIT ONE (DKs.) AND HIT RETURNS
   100
               JPITE(7,7000)
  1517
               CALL RESTORICE
                                -1 (PIVO) (ND(-1))
   933
               UPITE(7,7010)
               PERD(5:5010) (LHER(*1)::1=1:60)
   1119
  5118
               MP17E(7,7000)
               REPO(5,5030) (1(M20-1),1=1,11)
    911
   412
               URITE(7, 7075)
               REPORTS - 13800 T
    113
    314
               WHITE (7:700%)
               PERO(5-5056) 13811
    415
               WHITE(7,7007)
    616
   417
               REPO (5.5007) 12EG18
    ':18
               CREE SCREET (TRUSTA AND HANDE MARK ARREST TRUSTA ISBNCT)
                IF (NFEM: EQ. 6) GO TO 888
    919
                WITE (TENT) 6016)
    1121
    -(22
                WPITE(1UNIT, 6020) (LHEROVI), 1=1,60)
    323
                URITECIUNIT (6030)
                00 10 1=1.11
    124
    .925
                IFCIUMINCO NE. 1) 60 TO 10
                WRITECTURIT (6940) TO THOSE DOWNINGD WIRECTD REVIEW (D)
    127
    128
             10 CONTINUE
                                                                          19
                129
                HBLOCK=8
                 IXLCC=6
                 ISPANT=0
     33
            100 CONTINUE
                CALL INPUT (INCATA (ASA (COLLARPS), 2).
     134
```

# Program Listing STRPLT (Continued)

y Company of the

```
FRI 08-119Y-81 00:05:09
                                                                  PROF BS2
FORTRAN 10
                H01A-1
            1F(MARK.EQ.0) GO TO 800
6635
            IF(MPRK.EQ.-2) GO TO 810
607
0033
             IF(NBLOCK.NE.1) GO TO 120
             LRITE (JUNIT, 6410)
9941
8942
             00 115 1=1,10
             IF(IBDATA(1,1).NE.1SBJCT) 60 TO 115
8943
0945
             00 110 J=1.11
AGN46
             ISIR=INDEX(J)
8447
             WRITE(IUNIT,6408) J. ISUB, IROATA(ISUB, I)
(5:48
         THE CONTINE
8643
             GO TO 116
 ROFIG
         115 CONTINUE
 0651
         116 CONTINUE
6652
             MRITE(IUMIT, 6061)
6653
             IF(IUNIT.EQ.7) GO TO 120
 6655
             VRITE(6,6050) IESOPPILTY
 655
             LPRITE(6,6070) (LHERD(1),1=1,60)
0057
             URITE(6:6088) (LYTIT(1):1=1:108)
 MES
             WRITE(6,6898) (LYUPL(1),1=1,104)
 (1959
             WRITE(6,6100) (LYSORL(1),1=1,101)
 804.6
             WRITE(6,6110) (LYLINE(1),1=1,103)
664.1
         126 CONTINUE
 6642
             00 300 1=1.10
 464.
             IF(IBDATA(1,1), NE, ISBJCT) 60 TO 300
 11145
             15P94T=15P94T+1
 655
             IXL00=IXL00+1
 6667
             00 220 J=1,100
 6663
             LPCHPR(J)=32
 866.9
         228 CONTINUE
 6676
              00 268 K=1,11
 6671
              IF(1UNUM(K).NE.1) GO TO 268
 9973
              ISUB=INDEX(K)
 6974
              IVALUE=IBDATA(ISUB, I)
 6675
              IF(ISUB.EQ.22) IUPLUE=IABS(IUPLUE)
 9977
              RUPLUE=RBS(FLORT(IUPLUE)-XMIN(K)+1.0)
 6678
              YLOC=RUPLUE/RANGE(K)+108.0+8.5
 6679
              IF(IUNIT.EQ.7) YLOC=YLOC/2.0
 6631
              JYLOC=IFIX(YLOC)
 (66.2
              IF(IYLOC.GT.100) IYLOC=100
  6694
              1F(()UN1T.EQ.7).AND.(1YLOC.GT.50)) 1YLOC=50
 MY.
              IF(IYLOC.LT.1) IYLOC=1
  COST
              IF (IXLOC.LT. IBEGIN) GO TO 238
  809C
              IF(IUNIT.EQ.7) GO TO 238
               WRITE(7,7300) NELOCK,1,K,180ATA(4,1),1UFLUE,1XLOC,1YLOC
  (3)52
  (4(44)
          238 CONTINUE
  (5544
               JF(LPCHPR(JYLOC).EQ.32) LPCHPR(JYLOC)=LUPRC(K)
  MIT H
               IF(15UB.NE. 22) GO TO 266
  6993
               iF((]HSA(E.LT.0).AND.(]BDATA(]SUB,[).GE.0))
              1 LPCHPP(IYLOC)=43
               IF((IMSALE.GE.8).AND.(IRDATA(ISUB.I).LT.8)\
  ares:
                                                                        20
              1 LPCHPR(1YLOC)=45
  B162 .
               IHSAUE=IBDATA(19UB,1)
  6963
          268 CONTINUE
               LXSOFL=32
  (:1(:4
```

#### Program Listing STRPLT (Continued)

```
FORTHAN 1U
                          FRI 03-MRY-81 00:05:09
                HBIA-I
                                                                 PROE 083
0165
             IF(ISPRNT.EQ.10) LXSCAL=45
81C?
             IF(ISPRIT.EQ. 10) ISPRIT=0
6169
             IF(IXLOC.LT. IBEGIN) GO TO 390
1113
             IF(IUNIT.EQ.7) GO TO 270
6113
            \text{WRITE(6,6120) IBONTA(3,1), IBONTA(2,1), IBONTA(4,1),
                           LXSORL, LXLINE, (LPCHPR(IJNL), IJVL=1.100),
                           LXLINE, LXSORL, IRORTA(4,1), IXLOC
0114
             60 TO 300
M15
        270 CONTINUE
0116
             kRITE(7,7128) IEORTA(3,1), IEORTA(2,1), IEORTA(4,1), INLOC;
                           LXSCAL/EXLINE/(EPCHAR(IJAL)/IJAL=1.58)/
            1
                           LXLINE, LXSCAL
            1
         300 CONTINUE
0117
6118
             GO TO 100
6119
         800 CONTINUE
0120
             IRITE(6,7100)
             GO TO 828
0121
6122
         810 CONTINUE
0123
             IF(1UNIT.EQ.7) GO TO 828
             WRITE(6,6110) (LYLINE(1),1=1,103)
01/5
0126
             WRITE(6,6108) (LYSCAL(1),1=1,101)
0127
             WRITE(6,6090) (LYVAL(1),1=1,104)
0128
             WRITE(6:6081) (LATIT(1):1=1:100)
0129
             WRITE(6,6078) (LHERD(1),1=1,68)
6136
        828 CONTINUE
 6131
             CALL CLOSE(2)
6132
             STOP "END OF PROGRAM STRPLT.FOR"
 6133
        5818 FORMAT (6881)
 0134
        5039 FORMAT (1117)
 0135
        5035 FORMAT(17)
        5005 FORMAT (17)
 0136
 0137
        5037 FORMAT (17)
 0133
        7099 FORMAT(" NAME THE INPUT FILE (ASSIGN TO DK:)")
 6139
        7010 FORMAT( 'ENTER TITLE FOR PLOT (60A) MAX) ()
        7030 FORMAT( 'ENTER FLAG FOR THE ELEVEN UMPLABLES (1117) ')
        7035 FORMAT (* ENTER STUDENT NUMBER (1)*)
        7806 FORMAT(" ENTER OUTPUT UNIT NUMBER (LP:=6.TT:=7)")
 6147
        7837 FORMAT (* ENTER BEGINING LOCATION OF PLOT (1)*)
 6143
        7100 FORMAT (* READ EPROR IN INPUT FILE*)
 (1)44
        7390 FORMIT(1X,717)
 8145
 6146
        6018 FORMATY (15X) (C-58 STRIP PLOTTER ROUTINE 1/
             1 6X, ARMY RESEARCH INSTITUTE, FORT RUCKER FIELD UNITY
             1 6X, MULTIVARIATE ANALYSIS OF TIME SEQUENCED DATA!
            1 6X/10H-1 (HJEY) STUDENT PILOT SIMILATOR SESSIONS (*/ *)
        6020 FORMAT(1 (55%) (TITLE: 1)60A()
        6030 FORTHT (* 1711 1/5%) (URPLIABLE SORLES: 1711 17
 6143
                                                                            Copy available to DTIC does not
             1 1 15% (10DEX1) 3X, 19081,
                                                                            permit fully legible reproduction
             1 2X, THEREBY, 2X, THRESTERY, 6X, TRAVETY
             1 ' ',5%,' --- ',3%,' -- ',
1 2%,' --- ',2%,' --- ',6%,' --- '/' ')
 6149 6646 FORTHT (6%,15,2%,14,2%,F7.6,2%,F7.6,2%,F9.6)
 01501 0050 FORMT(1X,281/111)
                                                                       21.
 6151 - 8650 FORFITCH OF 19
             1 1 15% (UPPIRBLE KEYS) 1/1 1/1
```

#### Program Listing STRPLT (Concluded)

```
FORTHRE IV
                    HC1A-1
                              FP.1 09-MRV-81 00:05:09
                                                                     PAYE 094
               1 (1.5%) (INDEX (1.2%) (CHPR (1.2%) (DESCRIPTION /
               1 1/15%/----12%/----12%/-----
               4 6X, 15, 2X, 81, 5X, (STICK X (ROLL INPUT) (7)
               1 6X/15/2X/81/5X/4STICK Y (PITCH INPUT)//
               1 6X-15-2X-81-5X-4PEDAL POSITOR//
               1 6X, 15, 2X, 61, 5X, /PITCH//
               1 6X-15-2X-91-5X-7RQLL*/
               1 6X:15:2X:81:5X:/ALTITUDE//
               1 6X/15/2X/81/5X//TORQUE//
               1 6X/15/2X/HI/5X//AIPSPEED1/
               1 6% 15 2X 81 5% HERDING //
               1 6X-15-2X-81-5X-/VEPTICAL VELOCITY//
               1 6% 15-2% 81-5% (988/77-7)
   0152 - 6051 F09191 (1X/60) (NOTE 1: ALL SCALES PELATIVE EXCEPT HEROIMS//
               1 6% (NOTE 2: UPPIABLES SAMPLED ONCE EUERY TWO SECONES!)
               1 6X / HOTE 3: SIMBOU "+" INDICATES HEADING HAS (
               I 1 CHRYSED FROM NEGATIVE TO POSITIVE 1/2
               1 6X, "NOTE 4: SYMBOL "-" INDICATES HEADING HAS".
               1 / CHERGED FROM POSITIVE TO NEGRTIVE (** **)
   0153
           6676 F09191T(18X-609171X/1X)
   0154
           6999 FORMAT(18X,100A1/1X)
   6155
           6831 FORMAT (1X/18%) 100A1/1X)
   6156
           6090 FORMAT (17%, 104A1)
T 0157
           6100 FORMAT (17%, 10181)
্র গ্রহর
           6110 FORMAT(16X,103A1)
    £159
           6128 FORTHT (4X,12,15,14,1X,104A1,14,16)
    6168
           7128 FORMAT (1X, 13, 1X, 15, 1X, 15, 1X, 15, 4X, 5481)
           6418 FORMAT(6X,/INTIAL UALUES://IX/
    6161
                1.6X//1NDEX//2%//9UB//4X//URLUE//
                1 68,/----/,28,/---/,48,/----////)
1 0162 6400 FORMAT(6X,15,2X,13,2X,17)
    8163
                END
```

# Subroutine SCALE

```
PROF COS
FRETER! 10
                HBIA-1
                          FRI 69-MMY-81 00:05:37
(5(5))
             SLERGUTTHE SCALE (TROATA, WITH, WARK, MAPY, PARVE, THEEX, ISBNCT)
(4.5
            DIMENSION 1800TA(29,10), XMIN(16), XMIN(16),
                       MIN(16), MPX(16), RPHYE(16), INECX(16)
(33.
             NBLOCK=8
668:4
             00 10 1=1.16
605
             MIN(1)=32767
MAH
             MRK(1) = -32767
(45)
          10 CONTINE
(5 % 3
         100 OMTINE
             CALL INPUT (IBOATA NELDOY, MARY 2)
(((())
core
             JECTARY, NE. 10) 50 TO 400
0012
             10 200 1=1.10
60:13
             JF(180414(1-1).HE. ISBJCT) GO TO 200
6015
             10 166 V=1.11
6916
             19UB=INDEX(K)
6317
             IF(15UB.E0.22) 180ATA(15UB.1)=1ABS(180ATA(15UB.1))
(611.3)
             IF(IBDATA(ISUB,I),LT.MIN(K)) MIN(K)=IBDATA(ISUB,I)
6021
             IF (IBDATA(ISUB, I).GT.MAX(K)) MAX(K)=IBDATA(ISUB, I)
6623
         168 CONTINE
68724
         200 CONTINUE
6025
             60 TO 100
10126
         466 CONTINUE
 6627
             WRITE(7,7818)
 18028
             00 500 1=1,11
 10529
             WRITE(7,7020) I.MIN(1),MRX(1)
 6939
         500 CONTINUE
 607.1
             DU 600 1=1,16
 6632
             XMIN(I)=FLORT(MIN(I))
 6933
             XYPK(I)=FLORT(MPK(I))
 0074
              IF((MIN(1).LT.0).AND.(MFX(1).LT.0))
             1 RPHYCE(1)=PBS(XMIN(1))-PBS(XMRX(1))+1.0
 6036
              IF((MIN(1).LT.0).AND.(MRX(1).GE.0))
             1 RPNE(I)=RBS(XMIN(I))+XMPX(I)+1.0
 6003
              IF((MIN(1),GE.0),AND,(MPX(1),LT.0))
             1 RMME(1)=RBS(XMMX(1))+XMM(1)+1.0
 6646
              IF((MIN(1).GE.0).AND.(MMX(1).GE.0))
             1 RPME(I)=XMPX(I)-XMIN(I)+1.0
 6942
          600 CONTINUE
 6643
              XXIN(9)=8.6
 6044
              XTRX(9)=18889.6
              RMIE(9)=18901.8
 6545
 6646
              PEUHD 2
  6647
              PETURN
         7010 FORMAT (* UMRIABLE MINIMUM AND MAKIMUM URLUES*)
  6043
 8649
         7020 FORMAT (1X, 15, 2X, 17, 2X, 17)
  EHD
```

#### Subroutine INPUT

```
FORTHREE I''
                   HBIA-I
                              FRI 00-19W-81 00:05:53
                                                                    PROE GO!
    (S)(:1
                SUBROUTINE INPUT(X,NBLOCK,NPPK,N)
   (11)
                INTEGER DATA, X
    (0.00
                DIVENSION DATA(258),X(29,18)
    6514
                IP=0
    (6:5
                IPL=0
    11111
                DO 10 J=1.10
    (444
                100 100 1=1,29
    (35.43
                X(1,J)=8
    (444)
             18 CONTINUE
    6616
                IHPK=R
                REPO(NUEDD=501 (ERR=601) IDUM1 (IDUM2 (IDUM3 (IDUM4 (IDUM5 (IDUM5)
    6911
                                        (DATA(1), I=1, 250)
    6912
                HELOCK=HELOCK+1
    6913
                K=8
          C MAIN LOOP
    6614
                00 100 J=1.10
    6915
                K=K+2
          C STUDENT HUMBER
    8016
                X(L,J)=DATA(K)
          C PERIOD
    6817
                K=K+2
🏭 1918
                X(2,J)=100(DATA(E),256)
          C SECRENT HUMBER
    6919
                K=K+18
    0020
                00 20 I=1,2
    6021
                K=K+1
    8022
                MTV=MCO(DATA(K),2)
    6923
                X(3,J)=X(3,J)+MY
    6624
                DATA(K)=DATA(K)+ITK
    6625
             26 CONTINUE
          CIME
    6626
                K#K-12
    8827
             39 LPS=DATA(E)/256+1P
    6928
                IF(IPL.LT.LPS) 60 TO 48
    6639
                1P=1P+256
    6631
                60 10 38
    6032
             46 IPL=LP5
    6077
                X(4,J)=LPS
          C STICK X (ROLL INPUT) SORLING IS INCHES TIMES 100 MMX=6.24"
    0034
                00 58 1=5.8
    6005
                K=K+1
    10015
                Y=FLORT(DRTR(K))+0.019044+151GH(5,DRTR(K))/10.0
    6637
                X(I,J)=IMT(Y)
    667.3
             56 CONTINUE
          C STICK Y (PITCH IMPUT) SCALING IS INCHES TIMES 100 MAN=6.333"
    6653
                 00 68 1=9,12
    (1941)
                 K=K+1
                 Y=FLORT (DRTA(K))+8.819323+151GH(5.DRTA(K))/18.8
    6641
                                                                         Copy available to DTIC does not
    6942
                X(1,J)=INT(Y)
                                                                          permit fully legible reproduction
    (6)47
             68 CONTINUE
    (444
                 00 70 1=13,14
     604
                K=K+1
           O SIDE TASK START FLAG
     65146.
                HTY=100(DATA(Y),2)
                                                                         24
```

A Rosen Walleton .

#### Subroutine INPUT (Continued)

```
FORTERN 1U
               HO1A-1 FRI 08-MAY-81 08:05:53
                                                              PME 882
6647
            DATA(K)=DATA(K)-KTY
8648
            X(26, J)=X(26, J)+189+KTY
      C PEDAL POSTION SCALING IS INCHES TIMES 100 MPG=3.25"
1049
            Y=FLOAT(DATA(K))+8.009919+151GH(5,DATA(K))/18.8
850
            X(1,J)=H7(Y)
8651
         78 CONTINUE
      C PITCH INDICATED NAX-60 DEGREES, SORLED TIMES 100
            00 88 1=15.16
6652
6653
            K=K+1
(654
            DATA(K)=DATA(K)-MOD(DATA(K),2)
0055
            Y=FLORT(DRTR(K))+0.54935+ISIGH(5,DRTR(K))/10.0
8656
            X(I,J)=IMT(Y)
6857
         88 CONTINUE
       C ROLL INDICATED MAKES DEGREES. SOFLED TIMES 100
6058
            DO 98 1=17,18
1059
            K=K+1
8858
            DATA(K)=DATA(K)-MOD(DATA(K),2)
            Y=FLORT(DRTR(K))+0.54932+151G4(5,DRTR(K))/10.8
0061
0062
            X(I,J)=INT(Y)
8863
         98 CONTINUE
       C ALTITUDE
6064
            K=K+1
 6665
            X(19, J)=DATA(Y)
       C TORQUE 0 TO 100 PSI
            K=K+1
 8066
            X(28, J)=DATA(K)/256
 8667
       C AIPSPEED MRX=146.5 KNOTS, SCRLED TIMES 100
 6063
            X(21,J)=64HOD(DATA(K),256)
       C HEADING 8 TO 368 DEGREES, SORLED TIMES 108
 6069
            K=K+1
 6676
             X(22, J)=FLOAT(DATA(K))+0.54932+ISIGH(5, DATA(K))/10.0
       C VERTICAL VELOCITY
 6671
            K=K+1
 6672
             X(23, J)=DATA(K)
       C YAU 8 TO 14.9 DEGREES, SCALED TIMES 108
             C COURSE DEVIATION
 0075
 6676
             X(25,J)=FLORT(DRTR(K))+0.54932+151GI(5,DRTR(K))/10.0
       C SIDE TASK MUTBER
 0077
             K=K-21
 6678
             X(26,J)=X(26,J)+MDD(DATP(K),256)
       C GENERATOR RECYCLE TIME
 6079
             X(29, J)=DATA(K)/256
       C STATION SELECT TIME
 9889
            K=K+22
 8081
             X(27, J)=08TA(K)/256
       CHINE RESPONSE TIME
 0332
             X(28, J)=MOD(DATA(K), 256)
 60%3
         100 CONTINUE
 (4304
             MPR/=18
 (335)
             PETURAL
 MY
         501 CONTINUE
```

# Subroutine INPUT (Concluded)

PRIZE 083

MARK:=-2
RETURN
601 CONTINUE
MARK:=8
RETURN
END

HOIA-1

FRI 60-1914-81 60:65:53

26

A Long & the parties of the second

Table 5

# STRPLT.FOR

Strip Plot							
Purpose: To plot flight variables on the line printer.							
Computer Output User Input							
	• Run STRPLT						
Pause Ready line printer and hit continue	(CR)						
Pause Insert data disc in unit one (DK:) and hit return	<b>€</b> R <b>&gt;</b>						
Name the input file (assign to DK:)	*DK: F17932. DAT (CR)						
Enter title for plot (goal Max)	Subject 17932 〈CR〉						
Enter flag for the eleven variables (1117)	0,0,0,1,1,1,0,1,1,0,0 <sup>1</sup> (CR)						
Enter student number (I)	17932 (CR)						

0 = Unwanted variables

1 = Desired variables

TO FORTH AND COME OF THE PARTY OF THE PARTY

Strip Plot				
Computer Output	Computer Input			
Enter output unit number (LP: = 6, TT: = 7) <sup>3</sup>	6 '. (CR)			
Enter beginning location of plot	0 ⟨CR⟩			
<sup>2</sup> LP = Line printer <sup>3</sup> TT = teletype				

C-50 STRIP PLOTTER ROUTINE

MONY RESEARCH INSTITUTE, FORT RUCKER FIELD UNIT

MULTIURRIATE MARLYSIS OF TIME SEQUENCED DATA

M-1 (MEY) STOOFNT PILOT SIMULATOR SESSIONS

THEE: SUBJECT 9933

#### UNRIHELE SCRLES:

RANGE	MEKIMUM	HINDHEM	9UB	BROEX
1971.	1665.	-365.	15	4
4813.	3231.	-1581.	17	5
566.	14%.	991.	19	6
211.	978.	768.	21	8
19991	10000	4	20	į,

#### UNKIHELE KEYS:

# INDEX OHR DESCRIPTION

STICK X (ROLL INPUT) 1 K STICK Y (PITCH INPUT) 3 4 PEDAL POSITION PITCH 4 F ROLL 6 a ALTITUDE 7 1 TORGLE 8 v AIRSPEED 9 h HEADING VERTICAL VELOCITY 18 Z

1994

31 9 Y

# INTIFE UPLLES:

ľ	HDF::	48	UPLUE
<b>b</b>		_	
-	1	5	-112
ł	7	9	246
•	3	13	-38
	? 3 4 5	15	271
1 -	5	17	2465
1.	6	19	991
	6 7	78	28
<b>1</b> ·	8	21	960
	8 9	71	-14421
<b>-</b>	10	23 24	218
	11	74	19

WIE 3: WHO RELES SHAFED WE EVERY THE SECONDS

HITE 3: SYMBOL "+" INDICATES MENDING HAS CHANGED FROM MEGNTIVE TO POSITIVE NOTE 4: SYMBOL "-" INDICATES HEADING HAS CHANGED FROM POSITIVE TO MEGNTIVE

# Example Output STRPLT (Concluded)

SCRUECT 9933

#### Y AMIS PERCENT

			Ģ Ģ	10 ;	208  -	39 ;	40 !	5 <b>8</b> !	68 !	70°	<b>90:</b> !	98 (	190 :
<b>\$</b> 5	8 9	æ	ia			P					- r	V	1 98
Ø	8 10	20	i a				F			ħ	r	ν	199
Ĥ	8 10	80	:	3					F	<b>r</b> v			18
H	8 1		;	à				V	ħ	r p			1 104
N	3 1	æ	•		9 (			h	ħ F		r	,	196 r ; 198
N.	8 1		;	. V		3 P		ħ				r	1119
H	81		i,	F	V	a a	,,	11				r	1112
H	81		P	F		a h	V		· ·			•	r: 114
r (t		116			a !	=			,		r v		i- 116
ų. H	8		•		e a h	14		r					vi 118
H	8		į		a h		r P						v: 120
ų. (4	8 1		:		h a		r				P V		122
Á		124			h.		a v						p: 124
Ĥ		126	į	V	h			r	F				: 126
_	-248		įγ	•	h	P	r		à				129
	-248			p v	ħ	r			a				: 131
	-248		:		h	V Pr			ð			•	: 133
	-248		•		ħ	v r	P		3				135
#	-248	137	-;		h v		r F		;	9			1- 137
	-748	139	;		ħν	1	r f	•		a			: 139
H	-248	141	;		v h		r P				9		: 141
(1		143	:		v h		FF				a		; 143 ; 145
5	-746	140			<b>v</b> h	1	r <del>ş</del>				a		147
*	-246	147		•	wh r		•					a	149
	-248	149	•	rv	h .		P .					à	151
	-248	151	ir	U	h		<b>.</b>					a	a 153
J	-746	153		_	V	h	P						a 155
7	-248	135		P _	V	,							ai~ 157
***	-248	13/	-;	<u>r</u>	<u>, , , , , , , , , , , , , , , , , , , </u>	h	··						#1 - 1JI
			;	;	1	:	;	:		;	1	}	1
			•	18	20	<b>*</b>	₩.	38	68	70	<b>90</b>	96	198

Y NXIS PERCENT

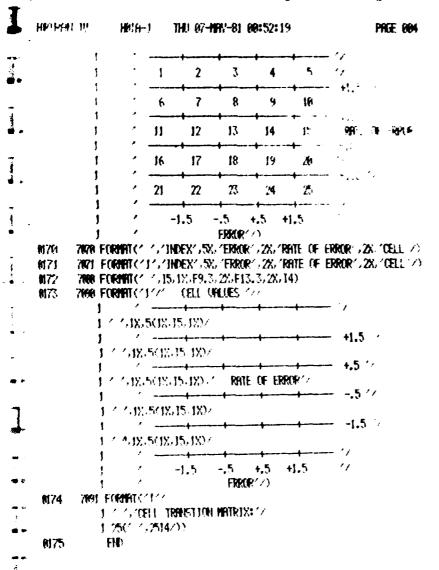
SOLECT SECT

```
FORTREM IV
                181A-1
                           THU 07-101-01 00:52:19
                                                                  PRIE 881
            PROGRESS: PHONG. FOR
            PLAPOSE: RETURNS CELL UPLUES FOR C-50 FLIGHT DATA
            CONTRACT: C-58
      C
      C:
            DATE: 21-FEB-81
            (TOPILO UPRELE(3000), ENGOR(3000)
            DIMENSION ICELLS(25), ITM/1X(25,25), KST/RT(190),
           1KSTOP(100), HEHK4, 100)
            INTEGER UNBELE, SURVET, NUMBER, MAN, SUB1, SUB2, SUB3, DEV, CELL, CELLMI
            REAL 1, J. CHKURL, ERMEAN
            DATA TOTERS, TOTSOR, EXPSUS, EXPERITOR, 8, 8, 9, 9, 9, 9, 9, 9
            DATA NATERY, TUTKTE, KTESOR, EIGSOR/0.0,0,0,0,0,0,0,0,0
            DATH SUBLISUBZISUBZINLINURR/0.0.0.0/
            DHTH 1(ELLS/2500/, 1700TX/62500/
      C
 1014
         17 CONTINUE
MIG
            PRICE' HIT RETURN & NIVE CUTPUT FILE'
制
            (ALL RESIGN(1,1 1,-1,1NEV1,1NC1,1)
            PHOSE INSERT DATA DISC IN DRIVE ONE AND HIT RETURNS
(4)7
1013
            PRUSE' HIT RETURN AND NAME THE 1ST INPUT FILE'
R014
            CHLL RESTON(2,4 1)-1,48001,4804,1)
WRITE(7,7022)
制化
            READ(5,5802)SUBJUT
8077
            URITE(7,7000)
1818
            READ(5,5000)CHKURL
19119
             WRITE(7,7923)
WA
            KFRD(5,5073)ERMERN, ERROEV, RTMERN, RTEDEV
101
            WKITE(7,7818)
NV/
            RFRD(5,5818) NUN
103
            3F(HMLFR, 21) SCRLE=10.0
III(A)
            IF (NUM.ER. 19) SCALE=1.0
100
             JF(NUM.EQ. 22) SCRLE=100.0
11/4
             JF(NUM.EQ.23) SCRLE=1.0
(4)(5)
             UK) TF(7, 7020)
W(2)
            KFRD(5,5020) DEV
(K)
       161
               00 21 11=1,100
#(34
             MFRD(2,5021)MSTART(11),MSTOP(11),(MPERM(JJ,1]),JJ=1,4)
MC.
             IF(KSTART(11).LE.0)GD TO 22
            CONTINUE
W(?)
      21
MICH.
       77
            ILIST=11-1
103
            (FILL (LOSE(2)
            PRUSE'HIT RETURN & NINE 2ND INPUT FILE'
            CRLL RESIGN(2,' ',-1,'NDO','NC',1)
1041
            DO 23 11=1, ILIST
            JF(NULEQ. 19) ENEROH-NEROK(1,11)
            JF(MALEQ.21) ENERO-(VERN(2,33)
            IFOUNLES.22) ENERO-NERO(3,11)
            IF(NULEU. 23) ENERN-NERN(4,11)
             ISHRT-ISHRT(II)
62
            ISTOMISTOR(11)
            CALL MENDI (NULLMANUR, ISTAT), ISTAT, SUBJECT)
(137)
            DO 20 K=1, NAMER
             ERR=(FLOM (UNRLE(K))/SOILE)-CHOURL-ERREN
                                                                         31
```

State of the second section of the second

```
FORTREN IU
                HB1A-1
                          THU 67-161Y-81 60:52:19
                                                                 離底 離2
MC6
            ERROR(K)=ERR
167
            CONTINUE
            HURRI=HUMURR-1
WK
      C
            URITE(DEV. 7800) SUBJET, NUM.
           1 NUMBER, SCALE, ISTART, 1STOP, ERMEAN, ERODEV, RTHEAN, RTEDEV
193
            WK) TE (DEV. 7851)
      (.
1663
            R=ERFERN+(1.54ERROEV)
1667
            E=ENFERN+(ERROEV+0.5)
1863
            (=ERMERN-(ERROEU+0.5)
864
            DERNERN-(1.50ERROEV)
WAS
            F=KTYERN+(1.54RTEDEU)
(K/
            F=RTMERN+(RTEDEU+8.5)
1667
            (=KTYEAN-(RTEDEUMO.5)
WE
            H=RTMERN-(1.50RTEDEU)
      (:
164
            WRITE(DEV, 7851)
MIT!
            WKJTF (DEV. 7070)
WI
            WK) TE (DEV. 7851)
      (
100
            LINES=15
1673
            DO 40 H=1.NURR1
1074
                ]=ERROR(N)
               J=ERROR(H+1)-ERROR(N)
概念
100
               (£11±0
1077
                IF(J.GE.E.MD.I.GE.A) CHL=5
10/9
                JF(J.GE.E.AND. J.GE.B.AND. J.LT.A) CELL=4
56(C)
                )F(J.CE.E.AND.1.CE.C.AND.1.LT.B) CELL=3
JF(J.GE.E.MD.).GE.D.MD.1.LT.C) CELL=2
MO
               JF(J.GE.E.AND.1.LT.D) CELL=1
HH!
                IF(J.GE.F.AND.J.LT.E.AND.J.GE.A) CELL=10
Mercy
                JF(J.GE.F.AND.J.LT.E.AND.J.GE.B.AND.J.LT.A) CF11=9
(6)
                IF(J.GE.F.MD.J.LT.E.MD.1.GE.C.MD.1.LT.B) CELL=8
                IF(J.GE.F.MD.J.LT.E.MD.T.GE.D.MD.T.LT.C) CELL=7
               JF(J.GF.F.FND.J.LT.E.FND.J.LT.D) CELL=6
1007
                JF(J.GE.G.AND.J.LT.F.AND.J.GE.A) CELL=15
 **
                1F(J.GE.G.MD.J.1.1.F.MD.1.GE.B.MD.1.LT.A) CELL=14
MAI
                JF(J.GE.G.AND. J.LT.F.AND. 1.GE.C.AND. 1.LT.B) CELL=13
MC.
                1F(J.GE.G.MD.J.L1.F.MD.1.GE.D.MD.1.LT.C) CELL=12
實金
                JF(J.GE.G.MD.J.LT.F.MD.1.LT.D) CELL=11
MAY
                JF(J.GE.H.AND.J.LT.G.AND.J.GE.A) CELL=20
 MAS
                JF(J.CE.H.AND.J.LT.G.AND.J.CE.B.AND.J.LT.A) CELL=19
                JF(J.CE.H.AND.J.LT.G.AND.J.CE.C.AND.J.LT.B) CELL=18
0111
613
                JF(J.GE.H.AND. J.LT.G.AND. I.GE.D.AND. I.LT.C) CELL=17
M15
                JF(J.(E.H.MD.J.LT.G.MD.J.LT.D) CELL=16
                JF(J.LT.H.MD.J.GE.M) (FLL=25
1117
 例14
                JF(J.LT.H, 640. J.GE, 8. 640. J.LT. 6) CELL=24
 8171
                JF(J.LT.H.AND. J.GF.(J.AND. J.LT.B) CELL=23
                3F(J.LT.H.MD.J.GE.D.MD.J.LT.C) CELL=22
 M73
                1F(J.17.H.AMD.).1.T.D) CELL=21
 制為
                IF (CELL, EC., 60) PROSE "FROOK IN CELL DETERMINATION"
 W76.
 11/4
                WRITE (DEULYRERO) N. J. J. CELL
 1139
                JOHAS (CHADE) CELLS (CHADE)
                                                                       32
```

```
FRETREAN IV
                HR1A-1
                          THU 07-191Y-81 00:52:19
                                                                PAGE ANS
               JF(N.L1.2) CELLMI=CELL
0133
               JF(N.LT.2) GO TO 39
M35
               1+(_LEO, INLLEO)XTRWTI=(_LEO, INLLEO)XTRWT[
0136
               (ELLM)=(ELL
M37
       39
               CONTINUE
8138
               LINES=LINES+1
M39
               JF(LINES,LT.45) GOTO 48
9141
                  I THES=8
8147
                  WRITE (DEV, 7071)
例(3)
       44 CINTINE
M44
            REWIND 2
            CONTINUE
6145
      73
            WR) TE (DEV. 7090) (10ELLS (N), N=1, 25)
1146
M47
            URITE(DEV, 7091) ((ITMITX(N,N), N=1, 25), N=1, 25)
MAY
            100 98 N=1,25
8144
            WR) TE(1,5024) (JTMTX(N,H),N=1,25)
M561
            CHLL CLOSE(1)
8153
            CHLL CLOSE (DEV)
M52
            STOP
053
      5400 FORMIT(F13.7)
8154
       1818 F(RIMT(16)
M55
       5011 FORMIT (F13.7)
例子
       5021 FORMAT(217,4F8.0)
M57
        5000 FORMAT(16)
1156
       5027 FORMY (17)
何59
       5623 FC60FT (4F15.4)
61661
       5604 FORMAT (2514)
R16.1
        7000 FORMATO' ENTER CHECK UPLUE TO BE ANALYSED'?
                   ' AIRSPEED-ENTER 98.00'/
                    ' ALTITUDE-ENTER 2000.001/
                   " HEADING -ENTER 98.00"/
                    ' RATE OF CLIMB-ENTER 8.88'/)
       YMIN FORMATIC! FOR THE WARIABLE TO BE AWALYZED: 1/
                    ' AIRSPEED - ENTER 21"
           1
                    ' ALTITUDE - ENTER 191/
                    ' HEADING - ENTER 22'/
                   ' RATE OF CLIMB - EMTER 23'/)
       7800 FORMAT(" FOR OUTPUT 6=LP 7=TT ")
       7871 FORMATO' ENTER THE START AND STOP POSITION IN FILE, ENTER EMERN')
MH
M65
        7N/2 FORMAT( 'ENTER SUBJECT NUMBER')
M66
        7823 FORMAT ("ENTER ERMEAN, ERADEV, RTHEAN, RTEDEV")
        7160 FORMATO SUBJECT: 1/16/
867
                    ' VARIABLE: ',12/
                    1 MARKER OF SAMPLES: 1/15/
                     VHRIFELE SCRLE: 1,F10.5/
                    1 STOP POSTION: 1/15/
                   ' MERN OF ERROR = ',F14.4/
                   ' ERROR DEVIATION = ',F14.4/
                   ' HEAN OF ERROR RATE = ',F14.4/
                   ' DEVIRITION OF ERROR RATE = ',F14.4/)
MER
       7651 FORMET (* *)
       7968 FORMATO CELL UNLES 1/1/
                                                                     33
116.9
```



PAGE 001

```
ध्यक्षाम् ।
                H01A-1
                           MON 04-MMY-81 02:38:02
            SURPOUTTHE READI (NUM, NUMBER, ISTART, ISTOP, SURTOT)
            (000001 URBILE (3000) , EPROP (3000)
(G^{(n)})^{*}
            DINERSION X(29, 10)
4 14
             INTEGER UPRPLE, X.SUBJCT
-
            198=8
19914
            184,007=6
ī, ::
            HAM HE
            (4) 36 J=1,389
(13.53
- 7/4
               CALL INPUT (X.ABLOCK, NAPK, 2)
. .
               IF (MAP)(.E0.-2) 60 TO 31
6012
               10 20 J=1,10
ger ;
                   IF(X(1,1).NE.SUBJCT) 60 TO 18
1 5
                   198=198+1
Biff.
                   IF(ISUB.LT.ISTAPT) 60 TO 10
(#1) S
                   1F(15UB.6T.15TOP) 60 TO 10
   HERRICH SERVICE
   1
                   UPPELE (NEW YER) = X(NEW . J)
       19
                   OWNE
       \mathcal{X}^{\prime}
               CONTINE
  4
       ٠,
            COSTRE
NO.
       7.1
             OMINE
(35%
            图 40平1.横臂鞭
               MPTTE(7,7000) KJUPPBLE(K)
*******
      44
           COTTRE
       7000 FORMT(* *),15,4X,16)
             43.5
```

```
MIN 04-MRY-81 02:38:15
                                                                 PRE 891
FORTRAN 10
                H81A-1
            SUBROUTINE INPUT(X,NBLOCK,NPRK,N)
1009
80032
            INTEGEP DATA X
8883
            DIMENSION DATA(250),X(29,10)
0004
            IP=8
             IPL=0
8005
0005
            00 18 J=1,19
0007
            00 18 1=1,29
8888
            X(1,J)=8
6669
         18 CONTINUE
6616
             HAK=0
             READ(N, END=501, ERR=601) IDUM1, IDUM2, IDUM3, IDUM4, IDUM5, IDUM6,
0011
                                     (DATR(1), I=1, 259)
             HELOCK=HELOCK+1
0012
9813
             K=0
       C MAIN LOOP
 9914
             DO 100 J=1.10
 0015
             K=K+2
       C STUDENT NUMBER
 0016
             X(1,J)=DATA(K)
       C PERIOD
 0017
             K=K+2
 0018
             X(2,J)=MOD(DATA(K),256)
       C SEGNENT HUNBER
 0019
              K=K+18
             00 20 1=1.2
 0020
 8821
             K=K+1
 0022
             NTK=HOD(DATA(K),2)
 6623
             X(3,1)=X(3,1)+MIK
 8924
             DATA(K)=DATA(K)-HTK
 0025
          28 CONTINUE
 0026
             K=K-12
 9927
          38 LPS=DATA(K)/256+IP
 0028
             IF(IPL.LT.LPS) GO TO 48
 0009
              IP=IP+256
 0031
             GO TO 39
 0032
           40 IPL=LPS
 0033
              X(4, J)=LPS
        C STICK X (ROLL INPUT) SCALING IS INCHES TIMES 160 MAX=6.24"
 8834
              00 58 1=5.8
  6035
              K=K+1
              Y=FLORT(DRTR(K))+0.019044+151QK5,DRTR(K))/10.0
  0036
              X(I,J)=IMT(Y)
  0037
  9938
           50 CONTINUE
        C STICK Y (PITCH INPUT) SCILING IS INCHES TIMES 100 NAV-6.333"
              00 68 1=9,12
  6839
  6646
              Y=FLORT(DRTR(K))+8.019323+151GH(5,DRTR(K))/18.0
  0041
              X(I,J)=IMT(Y)
  0042
            68 CONTINUE
  0043
  6944
              DO 78 I=13,14
  0045
               K=K+1
        C SIDE TASK START FLAG
               HTK=MOD(DATTA(K),2)
  8946
               DATA(K)=DATA(K)-HTTK
  0047
```

```
FORTERS 10
                    H019-1
                              MON 04-MAY-81 02:38:15
                                                                      PRIE 882
   EE48
                X(26,J)=X(26,J)+108+NTK
          C PEDAL POSTION SORLING IS INCHES TIMES 100 MRX=3.25"
   (6)49
                '/=FLOAT(DATA(K))+8.689919+151GH(5,0ATA(K))/18.8
  (8.00)
                X(1,1)*IM(Y)
   1661
             76 CONTINE
          C PLYCH INDICATED MAX=60 DEGPEES, SCALED TIMES 188
   (14)
                10 80 1=15.15
A. 184
                1'="+1
                (MTACK)=DATACK)-MOD(DATACK),2)
    144.1
                ":=FLORT(DRTR(F))>8.54935+151GH(5,DRTR(K))/18.8
    (4,4,4)
    19-
                X(L, I)=IR(**)
    194
             SS CONTINE
          I FOLL HOTCHTED MANESO DEGREES, SCALED TIMES 100
    信告的
                 16 90 1=17.18
    144
                 ∤'≠',+1
    (44.19
                 THIR(E)=DHTR(E)=TXX(CHTR(E),2)
    144.1
                 *\#{L0HT(L9HTA\;\)+0.54932+1$1@N(5.C9TA(K))/10.0
    14.4
                 ※1.3)=昭(で)
             90 CONTINE
    [44.
           CHITTEE
    \{t\}_{t=1}^{n}
                 1'="+1
   194.
                 2019 JUEDATA(P)
           C TOPOLE | 0 TO 100 PSI
                 1'=1'+1
    (4.4.4.
                  33. 任前附中心组引
           CHIPSFEED NEW-146.5 KNOTS: SCREED TIMES 100
                 3(21.J)=6(100)(DATA(K) (256)
    44
           ( HERENING O TO 360 DEGREES) SCALED TIMES 100
     144.4
                 F'≠(+<u>1</u>
                 $\(\)(22.J)\=FLORT(DATA(K))+0.54932+151GK5,CATA(K))/10.0
    \{y_{i,j}^{(k)}\}_{i=1}^{k}
           CHEPTICAL VELOCITY
     (35.1
                 K#(+)
     X(25.J)=DATA(K)
           ( VAV. 0 TO 14.9 DEGREES, SCRLED TIMES 100
    ((),
     (9)74
                 X(24,J)=FLORT(DATA(K))+0.04548+ISIGH(5.DATA(K))/100.0
           COURSE DEVIATION
     6975
                 K⇒(+1
     BOY.
                 X(25, J)=FLORT(DATA(K))+0.54932+151GH(5, DATA(K))/10.0
           CISTOR TASK HUMBER
                  K=K-21
     6677
    660.8
                  X(26, J)=X(26, J)+HOD(DATA(K), 256)
           ( GENERATOR RECYCLE TIME
                  X(29, J)=0ffff(F)/256
           C STATION SELECT TIME
     (31 23
                 1(=1(+22)
     (613)
                  X(27, J)=DATA(K)/256
            CHITTE RESPONSE TIME
     (8.5%)
                  X(28,J)=MOD(DATA(K),256)
             100 CONTINUE
     0000
     117:4
                  HFFX=18
     646
                  RETURN
     (9)1/2/4
              SOI CONTINE
     (3(2.2))
                  PENINO 2
```

# Subroutine INPUT (Concluded)

The Partie In HOIR-1 MON 04-MAY-81 02:38:15 PRCE 083 (\$135) (\$134 18F1'=-2 PETUPH 1374 601 CONTINUE 6691 **MAK**=8 (332 RETURN (314) 80 38

4 2 4 1 mm +

Table 6

#### PHANS, FOR

Return Cell Values for Flight Data					
Purpose: The user enters error mean, error deviation, mean error rate, and the deviation of the error rate. The computer reads the data file and computes phase plane cells and outputs a count matrix.					
Computer Output	User Input				
	• Run PHAN 3				
	(CR)				
Pause Hit return and name	(CR)				
output file	*DK:TTEST1.DAT				
	(CR)				
Pause Insert data disc in drive one and hit return	⟨CR⟩				
Pause Hit return and name	(CR)				
the input file	*DK:TTEST2.DAT				
	⟨CR⟩				
Enter subject number	20935				
	(CR)				
Enter check value to be analyzed: airspeed – enter 90.00; altitude – enter 2000.00; heading – enter	2000.00				
90.00; rate of climb - enter 0.00	⟨CR⟩				

n kan dan dan dan s

Table 6

## PHAN 3. FOR (Concluded)

Computer Output	User Input
NTER ERMEAN, ERRDEV, RTMEAN, RTDEV <sup>1</sup>	-340.56, 84.43, 0., 8.22
	(CR)
For the variable to be analyzed:	
airspeed - enter 21; altitude -	19
enter 19; heading – enter 22; rate of climb – enter 23	_(CR)
•	
For output 6 = $LP^2$ 7= $T^3$	6
	(CR)
inter start and stop position	
n file, enter ERMEAN	1, 9, -340.56
	(CR)
	62, 73, 109,25
	(CR)
NTER ERMEAN = Enter error n	nean
ERRDEV = Error Deviation RTMEAN = Mean Error Rate	
RTDEV = Deviation of Error R	ate
LP = Line Printer	
LP - Line Frincer	
<sup>3</sup> TT = Teletype	
Note: To end enter a negative nu	one set of START, STOP,

```
9R/F(T: 20005
UHRJAPLE: 19
HOPEK OF SOUPLESS
WHRITHELF SCALE:
                   1.00000
START POSITIONS
                    1
STOP POSTION:
HEFALL OF FAROR =
                     -340,5600
HAKER DEVIATION =
                         84.4388
                             0.0000
HEHAL OF ELECTOR RATE =
DEVIATION OF ERROR RATE =
                                  8.2200
  CELL UPLUES
   1
          2
                 3
                        4
                               5
                                     +1.5
          7
                         9
                               10
                 8
   6
                                      +.5
                                      RATE OF FRROR
  11
          12
                        14
                               15
                 13
                                      -,5
  16
          17
                        19
                               20
                 18
                                     -1.5
  25
         72
                 23
                        24
                               25
              -,5
      -1.5
                    +.5 +1.5
               FRRCR
 XXIII
          FREKOR RATE OF ERROR CELL
     1 -133, 449
                         35.000
                                    5
                                    5
                         38.000
        -98,440
        -49,449
                         38.000
        -72,440
                         34.000
         33.560
                         30,000
                         26.000
                                    5
          41.568
                         72.000
                                    5
          67.560
                         15,000
                                    5
     8
         89,568
SURJECT: 20005
 VHK1666E: 19
 HAMMAN OF SHOPLESS
                       12
 WHO HAVE SCHOOLS
                    1.00000
 STREET POSTTIONS
                    62
 STOP MISTICANS
 #HI (# HMOR =
                       109,2500
HAKIN HUJATJON =
                          84.4300
15-HAL (4-HAROR RATE =
-DEUTATION OF ERROR RATE =
```

;	. 2	. 3	. 4	. 5
<del>(</del> ,	7	8	9	19
11	12	13	14	15
16	17	18	19	28
 71	72	23	24	25

+.5 RATE OF ERROR

加米 ERROR RATE OF ERROR CELL

-39,250 12,000 -27.250 14.000 1 3 -13,250 16,000 2.750 7 9,000 31,750 9,999 12 11.750 -4.000 12 7,750 -4.000 12 8 3,750 -?,000 12 9 1.750 3,000 12 10 4.750 4,000 7 11 13,750 8,000

SUBJECT: 20005 UNICHME: 19

HIMMER (F. SAMPLES:

UMRIGHTE SCHLES 1.00000 STAKE MESTION:

CON NOTION: 168

MERN OF ERROR =

37.8900 FRECOR DEVIATION = 84,4390

MESSE OF FRACE PATE =

A, ARRA DEVIABION OF FRANK RATE =

8.2200

#### CHI UNITES

	<del>+</del>	3	<del> </del>	+	-
) 	· <b>4</b>	, i	. 4	<u>5</u>	- +1.5
6	7	8	9	18	_
11	12	13	14	15	RATE OF ERR
ļ <del>ķ</del> .	17	18	19	28	5
	77	73	74	75	1.5

```
ERROR RATE OF ERROR CELL
排件的
                                  19
        145,118
                        -R.RRR
                                  19
        337.318
                        -8.000
    3
                                  14
        129,118
                        -4.000
        125,110
                        -9.000
                                  19
        116.110
                       -18.888
                                  19
        166,118
                        -5,000
                                  19
        161.118
                        -3.000
                                  14
                        -9.000
    ۲
         98.118
                                  19
    4
         89.110
                       -22.000
                                  24
    161
         67.110
                       -24,666
                                  23
         43.118
                       -24,000
                                  23
   11
   17
                       -22.000
                                  23
         19.110
   13
         -2.898
                       -21.000
                                  23
   14
        -23,898
                       -21,000
                                  22
    15
        -44,898
                       -16,000
                                  22
    36
        +0.890
                       -11,000
                                  17
        -71.890
    17
                       -12.000
                                  17
    18
        -87,898
                       -15,000
                                  22
    19 -98,898
                       -14.000
                                  21
    19 -112,890
                         -8,000
                                  16
    01 -126,856
                         3,690
                                  11
    27 -117,898
                         8,000
                                   6
    (% -109,890
                         11.000
    - 4
        -48,898
                         13,000
                                   1
        -85,890
                         18,000
                                   2
    14
        -67,898
                         21,000
                                   2
        -46.898
                         19,000
 SHAROL MASS!
 1860 HMF: 19
 MARKER OF SHIPLESS
                       17
 SHOULD SCHEE
                    1.00000
                112
 SHARL HOSTION:
 STOP POSTBORE 123
 MEHIL OF FRECOR =
                        86.4200
 HEFTER TRUTHTHON =
                          84.4388
 MEGHT IF FRAME RATE =
 15111911001 OF ERROR RATE =
                                   8,2200
   CELL VISITES
                  3
                         4
                                5
                                      +1.5
                         9
    ŕ,
           7
                  8
                               18
                                      +.5
                               15
                                       MATE OF ERROR
   11
          12
                 13
                        14
                                      -.5
          17
                 18
                        19
                               20
   16
                                      -1.5
  73
          %
                 23
                        24
                               25
                                                                 43
    -1.5
              -.5
                     +.5 +1.5
               ERRCR
```

STORY AND STREET OF STREET

# 4X ERROR RATE OF ERROR CELL

I.	1	-27,428	7.000	7
_	2	-20, 420	5,000	7
	3	-15.420	4,600	12
l	4	-11.420	4,600	17
•	-5	-7.420	3.000	12
	6	-4,4/9	5.000	7
	7	9.588	7.000	7
١.	6	7.500	9.000	7
	4	16,500	3 <b>.000</b>	12
<b>E</b>	16:	19,500	1.000	17
	11	111,560	1.000	12

# I CELL UNITES

I	7	4	8	0	8	+1.5
<b>.</b>	3	8	Ą	R	Ą	
L	1	11	8	2	Ą	+.5 RATE OF ERROR
1	1	2	8	6	8	5 s
<b>J</b>	1	3	4	1	9	-1.5
	-1.5	5 ER	+.5 ROR	+1.5		

Secretarion of

TRINSTION MATRIX: 2 A e Ŗ 8 9 0 Ņ ? 8 8 8 P 9 Ø 6 e 0 51 8 8 8 Ø ß R 8 H Ð e 8 8 6 A 7 H 0 Ø Ŗ 6 0 Ģ е Ø 0 8 0 Ģ Ģ ß 8 0 H ø P R 0 ß 9 0 Ģ 9 8 Ģ 8 Ģ e ? 0 И 0 8 Ø 0 8 Ņ Ø 6 6 Ø Ģ 8 8 9 0 Ą Ģ e 8 Ą 6 Ğ Ø 6 B 6 1 2 9 Ø Ð Ą Ñ Ð Ģ Ģ Ŗ Ģ ß 6 Ð Ą Ģ Ŗ A 8 8 Ø R R 0 A 8 A Ņ 0 0 0 9 8 0 0 6 8 0 A 8 8 R 0 e Ø e ß B 8 B P Ø 0 1 A R Ø R Ø 0 Ø 9 8 Ą R 9 C B ē. e ß Ç P e 0 1 1 0 8 Ą Ø Ą Ŗ Ð P Ģ Ą ę. G Й A A Ç ŋ Ç 9 6 6 Ņ 9 8 ß P 1 0 A Ø Ą 0 Ø A 9 Ą 19 0 Ą 9 9 Ø Ģ Ū 9 В Ø e Ç 1 H 8 Ŗ Ą A Ą ġ 1 Ü 9 1 C Ū 0 ø 0 Ø Ŗ A Ą 0 0 Ą A A A P 1 A И Ø 8 9 9 Ņ Ą Ø Ø Ø Ø 8 Ø Ø Ø ß Ø ß 8 6 0 1 6 6 A A (1 A Ø 8 B Ø П Ω a n

u, aa a, a, 69 41. 64 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 8. 66 A, AM A, AM A, OM A, ୟ ନୟ ରାଜ୍ୟ C. CT 

```
FORTRIAN IV
                                                                                                                          THE 28-JUL-81 00:15:30
                                                                                                                                                                                                                                                                                                          PHCE (S):
                                                                             制什」
                                                          PHPHM.FOR
                                (:
                                 (:
                                                            PURPOSE TO READ MULTIPLE COURT MATERIALS AND
                                 Ç.
                                                            TO FORM ONE TRANSPOON MATERIAL
                                                            DIMENSION KTMATX(25, 25), 1 (MATX(25, 25)), 6 (MATX(25, 25))
                                                            00 5 1=1,25
         282
                                                            00 6 J=1,25
         13
                                                            KTWITX(1,J)≈@
      (065)
                                                             CONTINE
       1006
                                                              CONTINUE
      1667
                                                              PROSECHAT RETURN & NOVE COTHER FILE
      1000
                                                               CRLL RESIGNODE (S-1)/NEW CNCODE
        11
                                                              PROSECHIE REPLEM & NOVE INPUT FILE
        1810
                                                                CRLL AGSTGN(2) (5-1) (REC) (NO. ) 1)
                                                               00 16 1=1,25
        6811
                                                                REPORT 1000 (1750) (1-1) 251
        1012 10
        113
                                                                DO 12 1=1.25
       1614
                                                                 DO 13 J=1-25
                                                                KTWTX(1,J)=\armain(1,J)+\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{
· @15
        6016 13
                                                               CONTINUE
                                                                 CONTINUE
        12 12
                                      (
                                                                CONFUTE TRANSPERS MATRIX
         1018
                                                              100 14 1=1-25
         1819
                                                                 3U1-0.
        1826
                                                                 DO 15 J=1/5
           W.1
                                                                MINIO DELGAR CONTO (1.1)
         WZ2
                                   15
                                                                SUPPRIMARKANO DE
         823
                                                                 D0 16 J=1,25
         1024
                                                                  IF(SIRILECLOL) SIZEL
         MCK: 16
                                                                 PRIMITION DEPRESENTATION OF THE PRIMITION OF THE PRIMITIO
                                       14
        1027
                                                                 CONTINUE
         HCS
                                                                 PROSECULT RETURN RINGUI SFOR CONTINUESO FOR STURY
        W(29
                                                                 REPO(5, 101) 1945
           MC4:
                                                                 CALL CLOSE(2)
        1000
                                                                  1F (1945. EQ. 15-15-11
         00 17 1:17.25
                                                                 WRITE(1, 120) (AIMANA(1, J), J=1, 25)
         RC4 17
           MC5
                                                                  CRELL CEOSE(1)
           8836
                                                                  570P
           007
                                       160
                                                                 F08997 (2514)
           6628 101
                                                                  FORMAT (11)
           120
                                                                 FORFAT (25F5.2)
```

1946

END

Table 7

## PHAN 4.FOR

Purpose: Reads multiple count matrices and forms one transition matrix					
Computer Output	User Input				
	● Run PHAN 4 〈CR〉				
Pause - Hit RETURN and name Output File	⟨CR⟩ *DK;H491T3.DAT ⟨CR⟩				
Pause - Hit RETURN and name Input File	⟨CR⟩ *DK:H491C3.DAT ⟨CR⟩				
Pause - Hit RETURN and Input 1 for Continue, 0 for Stop	⟨CR⟩ * 1 ⟨CR⟩				
Pause - Hit RETURN and name Input File	⟨CR⟩ *DK:H201C3.DAT ⟨CR⟩				
Pause - Hit RETURN and Input 1 for Continue, 0 for Stop	⟨CR⟩ * 0 ⟨CR⟩				

PRIE 001

```
FIRTRAN JU
               H01A-1
                          THE 28-JUL-81 01:06:34
      C
            PHING. FOR
      C
            PURPOSE TO READ MULTIPLE COUNT MATRICES AND
      C.
            TO FORM ONE TRANSITION MATRIX
Rei1
            DINENSION KTMATX(25,25), ITMATX(25,25)
            00 5 1=1.25
            DO 6 J=1.25
            KTMRTX(1,3)=8
1005 6
            CONTINUE
1886 5
            CONTINUE
 ite;
            PRUSE "HIT RETURN & NAME OUTPUT FILE"
            ORLL RESIGNODAY (V=1)/NEW/V/NC/V()
1999
6669 11
            PRUSE HIT KETURN & NAME INPUT FILE
(61) (4
            CRLL ASSIGN(2)/1/5-1/1/RD0/5/NC/51)
(0))
            00 10 1=1,25
             REPO(2,100)(17MATX(1,J),J=1,25)
 6612 18
 1013
            00 12 1=1,25
 6814
             00 13 J=1.25
             KTMATX(1,1)=KIMHIX(1,1)+IMHIX(1,1)
 8815
             CONTINUE
 13
 6017 12
             CONTINUE
 18199
            PHUSE HIT RETURN RIMPUT IFOR CONTINUE, O FOR STOP!
 0019
             REPO(5, 101)1945
 6620
             CHLL CLOSE(2)
 (02)
             JF(1948.EQ.1) 60 10 11
 1023
             DO 17 1=1.25
 8824 17
             WRITE(1,100)(KTMHTX(1,J),J=1,25)
             CALL (T(GE(1))
 1825
 6626
             STOP
             FORMAT (2514)
 6927 188
             FORMA (11)
 0078 101
 1079
             END
```

#### PHAN 5.FOR

Purpose: Takes multiple single count file	count files and creates a e
Computer Output	User Input
	• Run PHAN 5 <del>(CR)</del>
Pause - Hit RETURN and name Output File	⟨CR⟩ *DK:HPC5.DAT ⟨CR⟩
Pause - Hit RETURN and name Input File	⟨CR⟩ *DK:H991C3.DAT ⟨CR⟩
Pause - Hit RETURN and Input 1 for Continue, 0 for Stop	(CR) * 1 (CR)
Pause - Hit RETURN and name Input File	(CR) *DK:H201C3.DAT (CR)
Pause - Hit RETURN and Input 1 for Continue, 0 for Stop	⟨CR⟩ * 0 ⟨CR⟩

```
EURTREN IU
                HBIA-I
                           THE 28-JUL-81 00:09:51
                                                                  PHOTE BOX
      C PROGRAM 'WITHAT FOR'
      C CREATED FOR THE HIJA SYSTEM
      ( ORIGINAL DATE: 4-JAN-80
      C PURPOSE: STOCKRETIC ADJUSTMENT FOR THE "MAP" SYSTEM
      C TRANSITION NATRICES AND THE SCORE ASSOCIATED WITH
      C EACH MATRIX ARE THE INPUT VARIABLES.
      COUTPUT IS A WEIGHT MATRIX WHICH MAY BE USED TO SCORE
      C THE PERFORMENCE OF A SAMPLE.
            CONTON /RELOCK/ TRACE, ISPROB, DLIMIT,
                             DLHCLD, WEIGHT,
                             PSCORE, CSCORE, GAIN,
                             HOUTHT, ERRHOU, ERRLIM,
                             MECH, WHICH
8882
             COPPION / IBLOCK/ IFRM 1, IFRM 2, IFRM 3,
                             JULEAU MANNAT JAMESIZ,
                             MANUALI MANALI JIROGRE,
                             HAINT JISSOTT LEIGTH
                              IBIG1, IBIG2, IBIG3, 1997.1
            DIMENSION TRANS(2000), TAPACE(2000).
                       DLIMIT(625), DLHOLD(625),
           2
                       WEIGHT (625),
                       PSCORE (25), CSCORE (25), (6A1N(25), 10LFHD(25),
                       IFR#11(25),1FR#12(25),1FR#11(15)
            PRUSE "INSERT DATA DISCUSSIONAL DISCUSSIONAL DATA HIT REGIONS"
       CIREFO CONTROL UPRIABLES
            CALL CUREAD
       C INTIALIZE WORK WARTARLES
             CALL INTIAL
       CIREAD THE PROBLEM VARIABLES
             CALL PAREND
       C COMPUTE THE LIMITING DISTRIBUTIONS FOR
       C THE TRANSITION MATRICES
             CPLL THOUGH
       O COMPUTE THE TRANSTATE PROBABILITY MATRICES
             CALL TSPH
       COMPLITE THE GAIN FACTOR FOR EACH MARKING
818
             CRLL TMGAIN
       C PERFORM THE STOCKHISTIC ACCUSTMENT PROCESURE
             CALL HOJUST
       COUTPUT THE RESULTS.
             CALL PARITE
112
             STOP "END OF PROGRAM STORDJ.FOR"
813
```

agas **J**arata,

```
PRE COI
FORTSR! !!!
                 H91A-1
                           TUE 85-1994-81 83:58:57
64.11
             SUBPOUT THE CUREAD
      C PURPOSE IS TO READ THE CONTROL URRIABLES
1250
             COMMON /RELOCK/ TRANS, TSPROB, DLIMIT,
                             DLHOLD WEIGHT
                             PSCORE, CSCORE, GAIN,
                             ADJINT, ERRADJ, ERRLIM,
                             ATOM: MHIGH
9993
             COMMON /IBLOCK/ IFRMI1.IFRMI2.IFRMI3.
                              IDLFID, NUMBER, ITMSIZ,
                              HANDLI, MANAIT, IADOME,
                              HAIRT, ISOTM, LENGTH,
                              IBIGI : IBIG2: IBIG3: IPSVTI
             DIMENSION TRANS(2000), TSPROB(2000),
60 614
                        DLIMIT(409), DLHOLD(400),
                        45 (488),
                        PSOSPE(20), CSCORE(20), GAIN(20), IDLFND(20),
                        IFP##1(20), IFP##2(20), IFP##3(20)
1005
             WRITE(7.7100)
 MAY.
             OPLE ROSSIGN(1) / ()-1, /ROO(, /NO(, 1)
(3)(7)
             UPITE(7,7110)
(4(1)**)
             OPEL POSSIGN(2) (1/1-1) (NEW) (NCC) (1)
 (4.4.4
             $51TE(7,7128)
 (6)
              PERO(5,5100) HIMMAT
 6611
             JRITE(7,7138)
 6012
             REPO(5,5100) ITMS1Z
6613
             IRITE(7,7148)
 19914
             READ(5,5288) ROJINT
6615
             URITE(7,7150)
 6016
              READ(5,5200) ERRLIM
 6617
              WRITE(7,7160)
 6018
              READ(5,5200) ERRADJ
 0319
              WRITE(7,7178)
 0020
              REPO(5,5100) HANDLI
 0021
              WRITE(7,7188)
 66322
              READ(5,5100) MANAIT
 6623
              WRITE(7,7198)
 8924
              READ(5,5300) (IFRMT1(1),I=1,20)
 0025
              WRITE(7,7200)
 6626
              READ(5,5399) (IFRMT2(1),I=1,20)
 6627
              WRITE(7,7210)
              READ(5.5300) (IFROTT3(1),1=1,20)
 0028
 (6529
              WEITE (7,7228)
 0030
              REPO(5,5200) MUON
 6031
              WEITE(7,7238)
 6602
              PERO (5,5200) WHICH
 69.
              WP.ITE(7,7248)
 0934
              PERO(5,5100) IPSAT1
  6635
              PETUPA:
  600
         5100 FORMAT(17)
  0037
         5200 FOPPHT (F13.6)
                                                                        51
  (803
       55300 F(95)AT (2002)
         7188 FORFRT(* NIVE THE INPUT FILE*/)
  14
         THE FORMATIC HAVE THE RESULT FILE (1)
  05:40:
         7128 FORMAT(" ENTER THE NUMBER OF TRANSITION MATRICES (1)")
  66:41
```

```
FORTER! IU
                 H819-1
                           TUE 05-199Y-81 03:50:57
                                                                 PREE 902
(5:42)
        7130 FORMAT(" ENTER SIZE OF ROW OR COLUMN FOR MATRICES (1)")
        7140 FORMAT( 'ENTER INTIAL VALUE OF ENTRIES IN WEIGHT MATRIX (R) ')
 (2943
        7156 FORMAT(" ENTER ALLOWABLE ERROR IN LIMIT COMPUTATION (R)")
 6644
        7168 FORMAT(" ENTER ALLOWABLE ERROR IN SCORE DEVIATION (R)")
 6645
        7178 FORMAT (* ENTER MAXIMUM INTERATIONS FOR LIMIT COMPUTATION (1)*)
- 66146
 6547
        7180 FORMAT (* ENTER MAXIMUM INTERATIONS FOR WEIGHT ADJUSTMENT (1)*)
 ભાવલ
        7190 FORMAT (* ENTER FORMAT FOR TRANSITION MATRICES READ (2002)*)
        7200 FORMAT(* ELITER FORMAT FOR SCORE READ (2002)*)
 0049
 (31%)
        7210 FORMAT (* ENTER FORMAT FOR WEIGHT OUTPUT (2002)*)
 651
        7228 FORMAT (" ENTER LOWER LIMIT FOR WEIGHT MATRIX CELL (R)")
        7238 FORMATIC ENTER HIGH LIMIT FOR WEIGHT MATRIX CELL (R)*)
 6652
 0053
        7248 FORMAT (* ENTER THTERATION PRINT SMITCH FOR ADJUSTMENT (I)*)
 (45-4
```

```
PRIE 001
                              TUE 05-MAY-81 03:51:13
  FORTHRE IV
                    HBIR-I
  (67:1
               SUBROUTINE INTIAL
         C PURPOSE IS TO INTIFILIZE UPRIPELES IN COMMON
                COMMON /RELOCK/ TRANS.TSPROB.DLIMIT.
   6662
                                DLHOLD WEIGHT,
                                 PSCORE, CSCORE, GAIN,
               2
               3
                                 ADJINT, EPRADJ, ERRLIM,
                                 W.OW, WHIGH
                COMMON VIBLOCK/ IFRMT1-1FRMT2-IFRMT3-
- .0003
                                 IDLEND MERRORT, ITMSIZ.
                                 MEADLI MAKAIT, IADONE,
                2
                                 HAINT, ISOTH, LENGTH,
                3
                                  IBIG1 - IBIG2 - IBIG3 - IPS/T1
                 DIMERSION TRANS(2000), TSPROB(2000),
    6664
                           DLIMIT(469), DLHOLD(469),
                           LEIGHT (488),
                           PSCOPE(28), CSCORE(28), GRIN(28), 10LFND(28),
                            IFP9771(20). IFR9772(20). IFR9773(20)
    6005
                 1B1G1=2000
                 IRIG2=490
    WEEK.
    (6617
                 181G3=20
    14(4(4)
                 IADONE=8
    (6.5.4
                 HAINT=0
    (C) (C)
                 ISOTM=ITMSIZ*ITMSIZ
    6011
                 LENGTH=NUMMET+1THS12+1THS12
    0012
                 OLINT=1.0/FLORT(ITMSIZ)
    (())
                 00 100 I=1. IBIG1
                 TP945(1)=0.0
    1014
    6615
                 TSPP08(1)=0.0
                  IF(1.67.18162) 60 TO 100
    (811E
    (6118)
                 WEIGHT(1)=ROJINT
    0919
                 DUHOLD(1)=DLINT
    6926
                 DLIMIT(1)=8.0
     9921
                  IF(1.GT.181G3) GO TO 100
     6623
                  PSCORE(1)=8.8
     0024
                  CSCORE(1)=0.0
     6025
                  GAIN(1)=8.0
     14124.
                  IDLFND(1)=8
              100 CONTINUE
     6927
     6028
                  RETURN
     6929
                  END
```

#### Subroutine PVREAD

```
FORTER! 10
                 HB1A-1
                            TUE 85-MMY-81 03:51:27
                                                                   PRIE 881
(3(3))
              SUBROUTINE PUREAD
       C PURPOSE IS TO READ THE TRANSITION NATRICES AND THE
        C THE SCORE ASSOCIATED WITH EACH MATRIX
0502
              COMMON /RELOCK/ TRANS.TSPROB.DLIMIT.
                               DLHOLD, WEIGHT,
                               PSCORE, CSCORE, GAIN,
                               ADJIKT, ERRADJ, ERPLIM,
                               ULOS, WHICH
 6663
              COMMON /IBLOCK/ IFRETT1, IFRETT2, IFRETT3,
                               IDLEND, NUMBER, ITHSIZ,
                               HANDLI, MANAIT, IADONE,
             3
                               HAINT, ISOTH, LENGTH,
                               181G1 , 181G2 , 181G3 , 1PSW11
              DIMENSION TRANS(2000), TSPROB(2000),
  6664
                         DLIMIT(408), DLHOLD(408),
              1
                         LEIGHT (408),
              3
                         PSCORE(20), CSCORE(20), GRIN(20), INLFND(20),
                         IFR#11(20), IFR#12(20), IFR#13(20)
  6995
               IK#RPPAT*ITESIZ
 000
               11=1
  6007
               00-20 K=1, IK.
  6663
               12=11+1TMS1Z-1
  (0,0)
               PERD(1, IFRIT1)(TRRIS(1), 1=11, 12)
  6016
               11=11+ITM51Z
  0011
               CONTINUE
  9012
               READ(1, IFRAT2) (PSCORE(1), I=1, MLRMAT)
 6913
               RETURN
  6614
               END
```

```
FORTERS 19
                 HR1R-1
                           THE 65-1974-81 63:51:40
                                                                   PRE 991
(C)
             SEROUTINE THOLIN
       C PURPOSE IS TO COMPUTE THE LIMITING DISTRIBUTION
       C FOR EACH OF THE TRANSITION MATRICES
             COMMON /ROLOCK/ TRANS.TSPROB.OLIMIT.
65612
                              DUHOLD, KEIGHT,
                              PSCORE, CSCORE, GAIN,
                              ADJUNT ERPADJ ERPLIM.
                              HEART WHICH
 6662
             CONMON VIBLOCK/ 1FRMT1.1FRMT2,1FRMT3,
                              IDLFND, MUTTHT, ITHSIZ,
             2
                              MEXICLI, MEXICIT, INDONE,
             3
                              NAINT, ISOTH, LENGTH,
                              IBIG1, IBIG2, IBIG3, IPSW11
 PERM
              DIMENSION TPPNS(2000), TSPROB(2000),
                        DLIMIT(400), DLHOLD(400),
                        USIGHT (493).
                        PSCOPE(29), CSCORE(20), GAIN(20), INLFND(20),
                         IFP##1(28), IFP##2(28), IFP##3(28),
                        THOUD(2000)
 345
              00 500 I=1.09000.I
 (4.6 to
              10 300 J=1,488991
 444
              JE(ICLERE(J).HE.8) GO TO 398
 9666
              YSTART=(J-1)*ITMSIZ+1
              KSTOP=KSTART+ITHSIZ-1
 MAIG
 6611
              SSCEPR=0.0
 6012
              00 200 KHISTART KSTOP
 90
              LSTART=(K-1)*ITMS1Z+1
 (6) 4
              LSTOP=LSTAPT+ITMS12-1
 6315
              DO 100 L=LSTART LISTOP
 6616
              TRADED(E)=DLHOLD(K)+TRANS(E)
 6017
              4RITE(7,12) THYOLD(L), DLHOLD(K), TPANS(L)
 6618 12
              F0999T (3F18.3)
 1993
         100 CONTINUE
 (44.4)
         209 CONTINUE
 6621
              KDUP:=8
 0022
              00 228 K=KSTART / KSTOP
 6623
              KDUM=KDUM+1
 6924
              LSTART=(J-1)+ISOTHHOUN
 0025
              LSTOP=LSTART+ISOTH-I
 6926
              DLIMIT(K)=0.8
 0027
              DO 210 L=LSTART, LSTOP, ITHSIZ
 6628
              OLIMIT(K)=OLIMIT(K)+TMMOLD(L)
 6529
              WRITE(7,13)DLIMIT(K)
 6638
              FURNITY (F12.4)
       13
 6631
          218 CONTINUE
 6632
              ERROR=DLIMIT(K)-DLHOLD(K)
  6633
              SSCERR=SSCERR+EDROR+EDROR
  8834
              DLHOLD(K)=DLIMIT(K)
                                                                         55
  9935
          228 CONTINUE
              IF(SSGEPR.LE.ERFLIN) IDLFND(J)=I
  0036
  (0) 3
          300 CONTINUE
  6939
              IFSUM=0
  141461
              DO 400 N=1, NUMBERT
  6641
               IF (ICLFND(M).NE.0) IFSUM=IFSUM+1
```

Charles of the state of the

## Subroutine TMDLIM (Concluded)

```
PRE 992
                          TUE 85-1994-81 85:51:48
FORTPAN IV
                HB1A-1
66.4
        408 CONTINUE
6944
            IF(IFSULED.NUMMAT) GO TO 888
6646
        508 CONTINUE
9647
            WRITE(7,7108)
            60 10 999
9648
6049
        800 CONTINUE
            WRITE(7,7118) (1,10LFND(1),1=1,NUPPHT)
(COS)
            WRITE(7,7128) (J.DLIMIT(J), J=1.150TM)
0051
0052
        999 CONTINUE
6653
             RETURN
(4.F.4
        7100 FORMATO: FAILURE TO FIND ALL LIMITING DISTRIBUTIONS!
                    * PROGRAM EXECUTION CONTINUES REGARDLESS*)
 6655
        7110 FORMATO SUCCESSFUL COMPUTATION OF LIMITING DISTRIBUTIONS (
                    " MATRIX", 3X, "ITERATIONS"
            2
                    28(718,15,98,15))
 MF.
        7120 FORMATO LECTOR FOR LIMITS FOLLOWS: 17
                     " INDEX "6X "LIMIT"
             1
                    2000 (19.35,2X,F9.5))
             1
 9667
             ĐĐ
```

\* 10 8 4 7 8 15 1 1 1

```
FORTPRE IV
                             TUE 05-MW-81 03:51:57
                                                                     PRIE 001
                   HB1A-1
  (43)
               SUBROUTINE TSPM
         C PURPOSE IS TO COMPUTE THE TRANSTATE PROBABILITY MATRICES
               COMMON /ROLOCK/ TRANS.TSPROB.DLIMIT.
  0002
                               DLHOLD, WEIGHT,
                                PSCOPE CSCORE, GAIN.
                                ADJINT, ERRADJ, ERPLIM,
                                MLOW, WHICH
~ 6983
               COMMON /IBLOCK/ IFRMT1, IFRMT2, IFRMT3,
                                IDLFIED/HARRIET, ITMSIZ/
                                HEADLI, MENSIT, ISDONE,
               3
                                HATHER, ISOMM, LENGTH,
                                IBIGI - IBIG2 - IBIG3 - IPSVT1
   8884
                DIMENSION TPANS(2000), TSPROB(2000),
                          DLIMIT(489) (DLHOLD(469)).
                          WEIGHT (489).
               2
                          PS009E(28), CS00PE(28), GATN(28), TDLFHD(28).
                          IFP#T1(28).IFP#T2(28).IFP#T3(28).
                          STPPP8(28)
   9995
                DO 300 I=1.440090
   6.34
                STRPRB(1)=0.0 ·
   6667
                JSTRPT=(1-1)*ITMS1Z41
   0003
                JSTOP=JSTART+ITMSIZ-1
   66674
                DO 200 JEJSTART, JSTOP
                PSTRPT=(J-1)*ITMSIZ+1
   8016
                KSTOP=KSTART+1TMS1Z-1
   6911
   9012
                DO 109 K=KSTART,KSTOP
   6613
                TSPROB(K)=DLIMIT(J)+TPANS(K)
   6914
                STPPRB(I)=STPPRB(I)+TSPP0B(K)
   1415
            100 CONTINUE
   6916
            200 CONTINUE
   6617
            366 CONTINUE
   6018
                WRITE(7,7100) (STRPPB(I), I=1, HUPPRT)
    8919
                WRITE(7,7110) (1,TSPROB(1),I=1,LENGTH)
    6926
                RETURN
           7100 FORMAT(* CHECK SUN FOR TRANSTATE MATRICES*/
   8921
               1
                        ' SHOULD BE EQUAL TO 1.0 (APPROXIMATELY)'/
                        4(1X,5F10.5/))
   0322
           7110 FORMAT( TRANSTATE VECTOR FOLLOWS: 1/
                        ' INDEX', 9X, 'URLUE',
                2
                        298(/1X,15,1X,F13.5))
                 END)
    8823
```

```
FORTING IV
                                                                      PRE 881
                               THE 85-MAY-81 83:52:11
                    HOIA-I
6863
                SUBROUTINE THIGHIN
          C PURPOSE IS TO COMPUTE THE GAIN FACTOR FOR EACH
          C OF THE TRANSITION NATRICES
                CONTON /ROLOCK/ TRANS./TSPROB.DLIMIT.
   6602
                                 DLHOLD WEIGHT.
                                 PSCORE, CSCORE, GRIN,
                                 ADJINT, EPRADJ, EPRLIM.
                                 RECONSTRUCTION
    MGC.
                 CONTON /IBLOCK/ IFPNT1, IFRNT2, IFRNT3.
                                  IDLEND HUMMET, ITHISIZ,
                                  HANDLI MANAIT IADONE.
                                  HAINT, ISOTM, LENSTH,
                                  181G1 - 181G2 - 181G3 - 1PS///1
     6664
                 DIMENSION TPRMS(2000), TSPPOR(2000),
                            DUINIT(400) DUHOLD(400).
                            LEIGHT (400).
                            PSCOPE(28), CSCOPE(28), GRIN(28), IOLFNO(28),
                3
                            JFPHT1(20), JFPHT2(20), JFPHT3(20)
     6995
                 00 200 I=1.HJPPHT
     99°K
                  JSTRPT=(I-1)*ISQTM+1
     MAG.
                  JSTOP=JSTAPT+150TH-1
     (3.33)
                  DO 100 JEJSTART JETOR
     6000
                  GATH(I)=GATH(I)+TSPROB(J)+TSPROB(J)
     BRIG
             100 CONTINUE
     6611
             200 CONTINE
     6012
                  WRITE(7,7100) (GRIN(I), I=1,NUMMIT)
     6013
     8014
            7100 FORMATICA COMPUTED GAIN FOLLOWS: 1/2
                         4(1X,5F18.5))
                 1
     6915
                  80
```

A Francisco

```
FORTHREE TO
                  HB1A-1
                            TUE 05-MRY-81 03:52:25
                                                                    PRIE 991
- 668:1
              SUBROUTINE POJUST
        C PURPOSE IS TO PERFORM THE WEIGHT MATRIX ADJUSTMENT
        ( PROCEDUPE UNTIL CONVERGANCE OR MAXIMUM
        C INTERRITIONS ARE PERFORMED
 6832
              COMMON ARREOCKA TRANS. TSPROB. DEINIT.
                               DLHOLD WEIGHT,
                               PSCORE, CSCORE, GAIN,
                               ADJINT, ERPAIN, ERFLIM,
                               MON MICH
  MAT.
              COMMON / IBLOCK/ IFPMT1 / IFRMT2 / IFRMT3 /
                               HOLFID HUMANT ITMSIZ
                               HANDLI, MANAIT, IADONE,
                               HAINT, ISOTH, LENGTH,
                               18161 - 18162 - 18163 - 1PSVT1
  (8 8 14
              DIMENSION TRANS (2000) . TSPROB (2000) ,
                         DLIMIT(400), DLHOLD(400),
                         HEIGHT (400).
                         PSCIPE(28), CSCIRE(28), GAIN(28), IOLFND(28),
                         IFPMT1(20), IFPMT2(20), IFFMT3(20)
  (4 d /c.
               SEEL 1-12-178-179
  (28%
               0.001=0.1
               10 500 I=LARWAIT
  (38:
  13.50
               !भागचभाग+1
  54.4.44
               DO 399 J=1.NUMMAT
  6616
               C500RE(J)=0.0
  (6)
               DO 198 K=1, ISOTH
  8812
               L=(J-1)*ISQTM#
               CSCORE(J)=CSCORE(J)+WEIGHT(K)+TSPROB(L)
  6013
  6614
           100 CONTINUE
  6915
               ERROR=PSCORE(J)-CSCORE(J)
               AJGAIN-EPROR/GAIN(J)
  0016
  8917
               00 200 M=1 ISQTM
  6618
               H=(J-1)+ISQTM+M
  6619
               WEIGHT (M)=WEIGHT (M)+AJGAIN+TSPROB(N)
  6626
               IF(WEIGHT(M).LT.WLOW) WEIGHT(M)=WLOW
   0022
                IF(NEIGHT(N).GT.NHIGH) NEIGHT(N)=NHIGH
   66:24
           200 CONTINUE
   0025
           399 CONTINUE
   0026
                550ERR=0.0
                00 320 J=1, NUMBERT
   0027
   8928
                CSCORE(J)=8.8
   0029
                DO 310 K=1, IS9TM
   GOCO
                L=(J-1)*15QTM+K
   0031
                CSCORE(J)=CSCORE(J)+NEIGHT(K)+TSPROB(L)
   6632
            318 CONTINUE
   9903
                ERROR=PSCORE(J)-CSCORE(J)
   9074
                SSOEPR=SSOEPR+EPROR*EPROR
   6675
            320 CONTINUE
   8976
                IF(SSGERR.LE.ERRADJ) IADONE=1
                                                                          59
   6633
                IF(IADONE.EQ.1) GO TO 338
                CINSSE=RBS(SSEHLD-SSGEPR)
    199461
    95141°
                IF(CINSSE.LT.CLIMIT) GO TO 338
    694
                SSEHLD=SSOEPP
    8944
                 JE(MOD(MAINT-IPSAT1).AE.0) GD TO 500
```

Samuel March

```
PRE 092
FORTERN III
                 H01A-1
                           TUE 05-117Y-81 03:52:25
-004€
         338 CONTINUE
             WRITE(7,7100) HAINT, SSCERR
 0047
 6643
             DO 408 J1=1, NUMMAT
 6649
             WRITE(7,7105) J1,PSCORE(J1),CSCORE(J1)
 6656
          400 CONTINUE
 6671
              WRITE(7,7118)
 6652
              00 410 K1=1, ISQTM
• 6653
              WRITE(7,7115) KI, WEIGHT(K1)
  6654
          418 CONTINUE
  6655
              IF (IRDONE.EQ.1) GO TO 600
  8657
              IF(CINSSE.LT.CLIMIT) GO TO 700
  6659
          500 CONTINUE
  6669
              WRITE(7,7120)
  6661
              GO TO 888
  8662
          600 CONTINUE
  6663
              WITE(7,713)
  664
              GO TO 888
  6055
          788 CONTINUE
  866.6
               WRITE(7,7140)
  6957
          888 CONTINUE
  66%
               RETURN
          7100 FORMATICA ADJUST PASS: 4,14,4 SUM OF SOURCED DEVIATION = 4,F13.54
  6669
                     INDEX/38X,/SPIPLE/36X,/COMPUTED//)
  6676
          7105 FORMAT(1X, 15, 1X, F13.5, 1X, F13.5)
  0071
          7110 FORMAT( LEIGHT VECTOR FOLLOWS: 1/2
                      ' INDEX (-8X) 'NEIGHT'/)
         7115 FORMAT (1X, 15, 1X, F13.5)
  6072
          7120 FORMATICA UNSUCCESSFUL ADJUSTMENT WITHIN CRITERIAL.
                       " AND LIMIT ON ITERATIONS")
          7130 FORMATIC! ADJUSTMENT SUCCESSFULLY PERFORMED WITHIN CRITERIA!
          7140 FORMAT (* ADJUSTMENT TERMINATED DUE TO COMMERCENCE *)
                       TTO MINIMUM POSSIBLE ERROR!
              1
   6976
               BO
                                                                      60
```

#### Subroutine PWRITE

```
THE 65-149Y-81 63:52:43
FORTHIR IV
                 HBIA-I
                                                                   PACE 991
(C)
             SUBROUTINE PURITE
      C PURPOSE IS TO WRITE THE RESULT FILE
0002
             COMMON /RBLOCK/ TRANS. TSPPOB. OLIMIT.
                              DUHOLD HEIGHT.
                              PSCOPE CSCOPE GAIN.
                              ADJINT ERRADJ EPPLIM.
                          · WLOW, WHICH
6983
             COPPION /IBLOCK/ IFPINT1, IFFINT2, IFFINT3,
                              IDLFND.NUMMAT. ITMSIZ.
                              MANDLI MANAIT, IADONE,
                              NAINT - 150TM , LENGTH ,
                               18161 - 18162 - 18163
 9994
              DIMENSION TRPP($(2000).TSPP0B(2000).
                        DLIMIT(400) DLHOLD(400)
                        WEIGHT (499),
             2
                        PSCORE(28), CSCORE(28), GRIN(28), IDLFND(28),
                        IFR#11(20), IFR#12(20), IFR#13(20)
 0095
              IK=ITMSIZ
 (FFK
              11=1
 1907
              10 28 K=1,1K
 (4.8.63
              12=11+1TMS1Z-1
 M(C_2)
              WRITE(2, IFRMT3) (WEIGHT(1), 1=11, 12)
 egilü
              II=II+ITMSIZ
 8011 28
              CONTINUE
 9912
              RETURN
 (613
              END
```

Table 9

#### WTMAT. FOR

Stochastic Adjustment for the "Map" System					
Purpose: The computer takes the transition matrix and provides a score matrix.					
Computer Output	User Input				
	• Run WTMAT 〈CR〉				
Pause Insert data disc in unit one (DK:) and hit return	(CR)				
Name the input file	*DK:TTEST1.DAT				
Name the result file	*DK:TTEST2.DAT				
Enter the number of transition matrices (I)	2 (CR)				
Enter size of row or column for matrices (I)	5 (CR)				

 $<sup>^{1}</sup>I$  = integer

Table 9

## WTMAT. FOR (Continued)

Stochastic Adjustment for the "Map" System				
Computer Output	User Input			
Enter initial value of entries in weight matrix (R) <sup>2</sup>	50.			
	⟨CR⟩			
Enter allowable error in				
limit computation (R)	.001			
	(CR)			
Enter allowable error in score	5.			
deviation (R)	⟨CR⟩			
Enter maximum interations for limit computation (I)	200			
	(CR)			
Enter maximum interations for weight adjustment (I)	200			
	(CR)			
Enter format for transition matrices read (20A2)	(5F3.1) <sup>3</sup>			
	⟨CR⟩			

 $<sup>^{2}</sup>$ R = real number. You must use a decimal point whenever the (R) appears.

 $<sup>^{3}</sup>$ Whenever formats are indicated, parenthesis must be used.

Table 9
WTMAT. FOR (Concluded)

or the "Map" System
User Input
(2F5.1)
(CR)
(5F5 <b>,</b> 0)
⟨CR⟩
0.
⟨CR₂
99.
⟨CR⟩
1
⟨CR⟩
,

# Example Output WTMAT

## WTMAT

# Score Matrix

	1	99.	99.	21.	99.	
	99.	50.	22.	99,	33.	
}	70.	87.	67.	50.	50.	
	50.	99.	24.	99.	18.	
	9.9.	99.	61.	99.	99.	

```
FORTRAN IV
                 HBIR-I
                            FRI 81-19N-81 82:28:88
                                                                    PROE (IC)
      C PROGRAM 'MLREGI.FOR'
      C PURPOSE IS TO PERFORM A MULTIPLE LINEAR
      C REGRESSION ANALYSIS UTILIZING
      C SUBROUTINES FROM THE IRM SS PACKAGE
6001
             DIMENSION X(6888), XPRR(28), STD(28), SCP(488).
                        R(210), DSCP(20), RX(361), RY(19), 1F0RMT(20),
                        RCCEF(19), SDRC(19), TURL(19), RNS(10),
                        WORK! (20), WORK2(20), ISPAE(20), IMORK! (19), IMORK2(19)
0002
             DATA X/6000+0.0/.XBAR/20+0.0/.STD/20+0.0/.
                  SCP/40040.0/. IFORMY/2041 - 1/.R/21040.0/.DSCP/2040.0/.
            2
                   RX/361+0.0/.RY/19+0.0/.RC0EF/19+0.0/.
                   SDRC/1948.8/. TURL/1948.8/. RE5/1048.8/.
                   WORK1/2010.0/,WORK2/2010.0/,159UE/2019/.
                   IREAD/8/. 100PK1/19+8/. 100Pk2/19+8
 2999
              PRUSE "INSERT DATA DISC IN UNIT ONE (DATE HAS HIT RETURN
 6884
              WRITE(7,7110)
              CRLL_RSSIGN(2) (17)-17 (RDC) (1801) 41
 1005
 6666
              WRITE(7,7115)
9907
              REPO(5,5110) NOSS
 6668
              WRITE(7,7120)
 6669
              REPO(5,5110) NAPR
 9010
              WRITE(7,7130)
 6011
              RERD(5,5110) NIURR
 6012
              WRITE(7,7140)
 6813
              REPD(5,5120) (ISPUE(I),I=1,NIVPR)
 8014
              WRITE(7,7150)
 0015
              REPO(5,5110) IDEPHT
              WRITE(7,7160)
 6616
 0017
              REPO(5,5110) JUNIT
 6018
              URITE(7,7170)
              REPD(5,5130) (IFORMT(1),1=1,20)
 8819
 6626
              ISTOP=NOBS*(NUPR-1)+1
 6621
              DO 100 J=1.NOES
 1022
              REPD(2, IFORMT) (X(I), I=J, ISTOP, NOSS)
 9923
              IREAD=IREAD+1
 8824
              1510P=1510P+1
 6825
          100 CONTINUE
 8826
              CPLL: CORRENOBS, NURR, X, VBFR, STD, SCP, R, DSCP, MOP(1, MOP(2))
 9827
              CRLL ORDER (NURRURU) IDEPNTUNIUMRU ISMUEUR (NURRU
 6828
              CPLL MINU(RX) NIUPR, DETROIT, IMOPK1, IMOPK2)
 6029
              OPLL MULTROHOBS/HIVER/MERR/STD/DSCP/RM/PM/ISEME
                          RCOEF (SDRC) TUFL (FNS)
 6628
              CALL ORDER (NUMBER ) IDEPATE NITURE (ISSUE) RXV RXV (I
 6631
              CALL LURITE (NORS) HAMPE, HTUPPE, XEPPE, STD, SCF, (190P), RV, RV, (1997E), RCCEF
                           SDRC, TURL, ANS, TURIT, TOEPIG)
 6832
              STOP 'END OF PROGRAM MUREGILFOR'
 6633
        1909 FORMAT (32F8, 3)
 8834
        5110 FORMAT(17)
 0035
        5120 FORMAT (1914)
 6036
        5130 FORMAT (2002)
 9837
        7110 FORMAT(* NAME THE INPUT FILE (RSSIGN) *>
 8239
        -7115 FORMATICAL EMTER HUMBER OF OBSERVATIONS (1,\cdot)
 90(3)
        7120 FORMAT( 'ENTER HUPBER OF VAPIABLES (1)
                                                                           66
 8949
         7138 FORMAT (1 ENTER NUMBER OF THEEPER SHIP CHATABLES (1)15
```

#### Program Listing MLREG1 (Concluded)

FRI 01-119V-81 02:20:33 PAGE 662 7140 FORMATION ENTER INDICIES OF INDEPENDENT MARIABLES (1914) ()
7150 FORMATION ENTER INDEX OF DEPENDENT MARIABLE (I) ()
7160 FORMATION ENTER THE OUTPUT UNIT NAMES (SELF: JT=TT: ) ()
7170 FORMATION ENTER THE INPUT FORMAT SPECIFICATION (2002) ()

```
FRI 01-199-81 02:10:41
                                                                                                                                                                                      PHILE COST
PERFIRM IV
                                             HPIA-I
                                  SURROUTINE CORR (NUMERICALISTS AND AND ADDITIONAL PROPERTY OF THE CORR (NUMERICAL PROPERTY OF 
                                   DIRECTOR X(1), SERV (1), CID(1), RD(1), P(1), E(1), D(1), T(1)
                                  00 100 J=1.M
                                  B(J)=8.6
                        100 T(J)=0.0
                                   K=(M+M+M)/2
                                   00 102 T=1.K
 9887
 6668
                        162 R(1)=0.0
 0009
                                   FHH
  6018
                                    L=8
                                    DO 108 J=1.M
  9811
  0012
                                    00 107 I=1.N
  8013
                                   L=L+1
                         187 T(J)=T(J)+X(L)
  1014
                                     XBRR(J)=I(J)
  6815
                          108 T(J)=T(J)/FN
   6016
   6017
                                     DO 115 I=LH
   8818
                                     JK=€
                                     L=1-H
   819
                                      DO 118 J=1.M
   6626
   6621
                                     LIH
   0022
                                     D(J)=X(L)-T(J)
                           110 B(J)=B(J)+D(J)
   8823
   8824
                                      DO 115 J=1.85
                                      00 115 K=1.J
   8825
   6826
                                       JK=JK+1
                           115 R(JK)=R(JK)+D(J)+D(K)
   8827
   0028
                                       JK=0
   6829
                                       00 210 J=1.M
   8839
                                       XBPR(J)=XBPR(J)/FR
                                      00 210 F=1.J
   1299
    8832
                                        1+沢=沢
    6633
                           218 R(JK)=R(JK)-B(J)*B(K)/FH
    0034
                                       JK=8
    8835
                                       00 220 J=1.N
    9836
                                        JK=JK+J
                           228 STD(J)=SORT(RES(R(JI()))
    9937
    8280
                                       DO 230 J=1.11
     8839
                                       00 238 K=J/N
     8848
                                        JK=J+(K+K+K)/2
    8841
                                        L=#(J-1)4K
                                        RX(L)=R(JK)
     8842
                                       L=#+(K-1)+3
     8843
     8944
                                        RX(L)=R(JX)
                                        IF(STD(J)+STD(K)) 225,222,225
     9945
                            222 R(JK)=0.8
     6946
                                        GO TO 238
      9947
                            225 R(JK)=R(JK)/(STD(J)*STD(K))
      8848
      8049
                            238 CONTINUE
 : 8656
                                         FN=SORT(FN-1.0)
      851
                                         DO 248 J=1.N
                             240 STD(J)=STD(J)/FN
                                                                                                                                                                                                   68
      6852
      6653
                                         L=H
                                         DG 258 I=1.M
      8854
```

# Subroutine CORR (Concluded)

FORTRAN IV HBIR-1

0055 L=L+H+1

0056 250 B(1)=RX(L)

0057 RETURN

**965**8

END

FRI 01-1991-81 02:20:41

PRCE 082

# Subroutine ORDER

1.	FORTRAN	IU HBIR-İ	FRI 01-116Y-81	62:26:59	PRŒ 901
	. 0081		rder(n.r.hdep.)(		
Ī	8882	<b>DIMENSION</b> RO	1), <b>ISRNE</b> (1)。除汉	15. <b>R</b> A15	
• •	8883	191=0			
	9864	00 138 J=1,1	(		
Ì	0005	L2=ISAUE(J)			
1.	0006	IF(NDEP-L2)	122,123,123		
	9987	122 L=10EP+(L24	(2 <b>-L</b> 2)/2		
i	8888	<b>GO</b> TO 125			
1.	6669	123 L=L2+(NDEP*	NDEP-NDEP1/2		
	<b>66</b> 16	125 RY(J)=R(L)			
	9811	00 130 I=1,	K		
\$	- 1812	LI=ISAUE(I)			
•	<b>991</b> 3		127,128,128		
	6614	127 L=L1+(L2+L	2-1.2)/2		
'	<b>66</b> 15	<b>60 TO 129</b>			
•	<b>68</b> 16	128 L=L2+(L1*L	1-11/2		
	6917	129 101-101+1			
	<b>68</b> 18	130 RX( <b>PP</b> 1)=R(L			
	6019	15AUE(K+1)	<b>₹0</b> €P		
	<b>98</b> 28	RETURN	•		
•	6621	END			
:					

```
PRICE COST
FORTRAN IU
                HB1A-1
                          FRI 01-1977-81 02:21:12
            SURROLLTINE MINUKARIADALAD
6661
1882
            DIMENSION RCD. LCD. RCD.
6663
            D=1.0
6664
            MK>-H
            00 80 K=1.N
8865
            MK≠K+N
8886
            L(K)≠K
8887
            W(K)≠K
6668
8889
             KX=N(+)
             BIGH-A(NX)
 6010
 8811
             DO 20 J=KH
 1812
             12=#+(J-1)
             DO 20 1=UR
 6913
             IJ=1Z+1
 6014
 6915
          10 IF(ABS(BIGA)-ABS(A(IJ))) 15,20,20
 0016
          15 BIGA=A(IJ)
 0017
             L(K)=I
             M(K)=J
 6618
          20 CONTINUE
 6619
 6626
              JL(K)
              IF(J+() 35,35,25
 0021
 0022
          25 四米刊
              DO 30 I=1.N
 0023
 6624
              四共二十二
 6625
              HOLD=-R(KI)
 8826
              31米1米+3
              A(KI)=A(JI)
 6627
          30 A(J1)=10L)
  8828
           35 I=M(K)
  9929
              JF(J+K) 45,45,38
  6636
  0031
           38 JP=#+(1-1)
-8932
              DO 40 J=1.H
  8833
              JK#K+J
              JI=JP+J
  8834
  6635
              HOLD=-fi(JK)
  9836
              A(JK)=A(JI)
  6637
           48 A(JI)=HOLD
  8299
           45 IF(BIGA) 48,46,48
           46 D=0.0
  6639
  8848
              RETURN
  8941
           48 00 55 I=1.H
              JF(1-K) 50,55,50
  6042
           50 IK≠K+I
  6643
              ACIK)=ACIK)/(-BIGA)
  8844
           55 CONTINUE
  1045
  6646
              DO 65 I=1.N
              ]K=4K+]
  9047
  6948
              IJ=1-₩
  8849
              DO 65 J=1.H
  0058
              13=13#4
              IF(1-K) 68,65,68
  6651
  9852
           66 IF(J-K) 62,65,62
                                                                    71
  0053
           62 KJ=1J-1+K
              ACID=RCIK)*R(KJ)*R(IJ)
  6654
```

```
PR/E 002
FORTREN 1U
                HB1A-1
                         FR1 01-19W-81 02:21:12
         65 CONTINUE
0056
            KJ=K-N
            00 75 J=1.H
6657
9858
            KJ=KJ+N
            IF(J-K) 76,75,76
6659
         78 A(KJ)=A(KJ)/516A
6660
         75 CONTINUE
6661
            D=D+BIGA
8662
6663
            AKKK)=1.0/BIGA
6664
         88 CONTINUE
 865
            K≠K
6666
         100 K=K-1
 6667
             IF(K) 150-150-165
 868
         105 I=L(I)
 6669
             JFOHO 120-120-103
         108 JQ=N+(K-1)
 8878
             (1-1) #年紀
 0071
             00 110 J=1.H
 6672
             JK=JQ+J
 6873
             HOLD=A(JI)
 8874
             JI=JR+J
 0075
 0076
             A(JK)=-A(J1)
         110 R(J1)=H0U
 6077
 9878
         126 J=K(C)
 6079
             IF(J+f) 100-100-125
         125 K1=K-H
 8888
 68:1
             00 130 1=1.8
 0082
             K1=(1+1;
 6663
             HOLD=A(EI)
 8884
             J]=<[]-K+J
 1085
             A(KI)=-A(JI)
 6696
         138 R(J1)=H0LD
 6687
             60 TO 160
         150 CONTINUE
 1088
 8889
             RETUP!
 8890
             END
```

#### Subroutine MULTR

```
PAYE (601
FORTRAN IU
                HBIA-1
                          FPI 01-MW-81 02:21:01
            SURROUTINE MULTICINENSISSER, STUDDINGER, 15975, BUSSIA, MS.
1886
0002
            DINENSION XBAR(1),STD(1),D(1),EX(1),EX(1),
            1
                       ISAUE(1),B(1),SB(1),T(1),H'B(1)
8883
            HH=K+1
             00 100 J≈1.K
8884
         188 B(J)=0.8
9995
             DO 118 J=1.K
6666
             LI=K*(J-1)
 6687
6668
             00 110 I=1.K
             [=1]+]
 9989
         118 B(J)=B(J)+RY(I)+RX(L)
 9010
             R#=0.0
0011
             80=8.8
 6612
             LI=ISPAE(MY)
 6813
 6014
             00 120 I=1.K
             RM=RM+B(I)+P((I)
 9815
 6016
             L=ISPLE(1)
              B(1)=B(1)*(STD(E1)/STD(L))
 8617
         120 80=80+B(I)+XBRP(L)
 6018
             80=XBAR(L1)-(0)
 1019
 1828
              SSPR=RM+D(LT)
              RM=SQRT(RES(PM))
 8821
 0022
              SSDR=D(L1)-559R
              FIHHK-1
 6623
 8824
              SY=SSDR/FIX
              00 130 J=1.K
 8825
              L1=K*(J-1)+J
 8826
 8027
             L=ISALE(3)
 0028
          125 SB(J)=5097(ABS((F))(LI)/I(L))*SV))
          138 T(J)=B(J)/SB(J)
 0029
          135 5Y=50PT (PB3/57/1)
 9838
 1200
              FK#
 9832
              SSARM=SSAR/FI
              SSDRM=SSDR/FH
 8833
 6634
              F=SSARM/SSDFf:
 8835
              RH5(1)=80
 8836
              RM5(2)=RM
              845(3)≈3Y
  8037
  8280
              PMS(4)=55PP.
  8839
              ANS(5)=FK
  6646
              PH5(6)=55PF9;
              RHS(7)=55DR
  9941
              PMS(8)≠1;
  8842
  8843
              ANS(9)=530RN;
              ANS(10)=F
  6844
  6645
              RETURN
  6846
              80
```

#### Subroutine LWRITE

```
FORTRAN IV
                H81A-1
                           FRI 01-19W-81 02:21:47
                                                                    PRE SS.
6661
             SIRROLITHE LARITECTPERD MARRIADER, ARRELATION SCRUDGER, ROLLE LARITECTPERD, MARRIADER, ARRELATION (SCRUDGER, ROLLE), ARREST
                                RODEF (SDRC), TUPL (ALS: IUXILI), INDEP )
6682
             DIVENSION XBAR(1),STD(1),SQP(1),DSQP(1) R(A1),RV(1),
                       ISPUE(1), PODEF(1), STAPO(1), TVAL(1), AUS(1)
6963
             NURRI=NIUPP+1
8884
             WRITE (TURIT, 6110)
9925
             WRITE(1UNIT, 6128) TRESC
8886
             WRITECIUNIT, 6130) 18PP.
8827
             WRITE(IUNIT)6140) HIUSE
8888
             網TE(UNIT)(6150) (1595E(1),1=1,出9至)
0009
             WRITE(1UNIT, 6160) 1589.5 ($1099:+1)
1819
             WRITE (IUNIT, 6170)
8811
             00 100 I=LHIVPP
9812
             J=1SRUE(1)
6013
             WRITE(IUNIT.6188) J. 1899 (J) .5TD(J)
0014
         100 CONTINUE
8015
             WRITE(IUNIT, 6190) XBAP(INDEP), STD(INDEP)
6616
             WRITE(IUNIT, 6191)
6617
             00 118 I=1, HAPP1
6618
             00 165 J=1.MMP1
8019
             H=ISAME(I)
8828
             J1=ISPUE(J)
8821
             IF(J1.LE.11) GO TO 105
9923
             K=(11-1)*###P+J1
8824
             WRITE(1UNIT) 6192) 11, J1, 50P(K)
         165 CONTINUE
6625
8826
         110 CONTINUE
0827
             WRITE(JUNIT, 6193)
8828
             00 128 I=1.HIVE
6829
             8839
             IF(J.LE.1) 00 TO 115
9932
             K=(1-1)*|11(90+)
6633
             WRITE(IUNIT)6194) ISPUE(I), ISPUE(J), PM(F)
6634
         115 CONTINUE
6633
         128 CONTINUE
0036
             WRITE(1UNIT, 6195) ISHE(1UNF1)
6637
             00 125 I=1.HTURP
8238
             WRITE(IUNIT, 61%) ISSUE(I), RV(I)
8839
         125 CONTINUE
9848
             WRITE(1UNIT, 6197)
8841
             DO 138 1=1, NUPR1
             J=ISALE(1)
0042
8843
              IF(DSCP(J).GT.999999999.6) GO TO 129
8945
             WRITE(IUNIT, 6198) J. DSCP(J)
9946
             GO TO 139
         129 CONTINUE
8847
6648
             WRITE(IUNIT, 6199) J.DSCP(J)
6049
         138 CONTINUE
 9858
             WRITE(IUNIT,6200)
6651
             00 200 I=LKIU99
0052
              WRITE(TURIT)62101 TERRECT).POTER(1).STATE 1 - TORL(1)
9253
         200 CONTINUE
                                                                        74
8854
             WRITE(IUNIT, 6220) RES(1)
8055
             WRITE(1UNIT, 6238) PES(2)
```

```
FORTRON TU
                HRIA-I
                         FRI 61-198/-81 62:21:47
                                                              PRIE CS2
8856
            R2=R15(2)*+2
0057
            WRITE(IUNIT, 6231) R2
8658
            WRITE(1UNIT, 6240) PH5(3)
8659
            WRITE(IUNIT, 6250)
8868
            WRITE(1UNIT)6268) PHS(4) PHS(5) PHS(6) PHS(18)
 6661
            WRITE(1UNIT, 6278) RES(7), RES(8), RES(9)
 6662
8863 6118 FORPRT(* */* */* MULTIPLE LINEAR REGRESSION*)
8864
       6128 FORMAT( ! NUMBER OF OBSERVATIONS = (.17)
       6130 FORMAT(* NUMBER OF URRIABLES = */.17)
 8865
       6140 FORMAT( * NUMBER OF THEOEPERSENT USERNELES = 1.13)
 8866
        6150 FORMATION INDICES OF INDEPENDENT UNPRINEALES: 77
                   (4/1914)
            1
        6160 FORMATICA INDEX OF DEPENDENT UNRINGLE: 114)
 6068
        6170 FORMATION OF TROSPENDERS OF TROSPENDERS OF
                        TURPLIABLES: 17
                    1 INDEX 1,887, (NEAH) 1,887, (SDEU) 1.
                         6078
        6188 FORMAT (1X, 15, 1X, F11, 3, 1X, F11, 3)
        6190 FORMATION MEAN OF DEPENDENT UNRIFIELD = 15811.3
                       / STANDARD DEVIATION OF DEPENDENT (APPABLE = FILE)
        6191 FORMATION OF SUN OF CROSS PRODUCTS:
                   INDEXYD2N/INDEXYD7X/1980F
                    ' ----' ,2%,' ----' ,7%,' ----' ·
 0073 6192 FORMAT (1X,15,2X,15,1X,F11.3)
 8074
        6193 FORMATY OF INDEPENDENT UNRISHED CORPELATIONS:
                    * INDEX*/2X/*INDEX*/6X/*Y05F
            1
                    / ---/.2X./---/.6X./----
                    11
        6194 FORMAT(1X, 15, 2X, 15, 1X, F9.3)
 6075
        6195 FORMATION OF CORRELATIONS WITH DEPENDENT CRETERIES AND
 6076
                    1 INDEX1/6X/1009R17
            1
                    / ----/,6X/----//
                    11
 9077
        6196 FORMAT(1X, 15, 1X, F9.3)
        6197 FORMAT(4 1/4 SUM OF SQUARES: 47
                   1 INDEX1/9X/19UNSQ1/
            1
                    / ----/,9%,/----//
                    11)
 6879
        6198 FORMAT (1X, 15, 1X, F13, 3)
        6199 FORMAT (1X, 15, 1X, F13.0)
 6688
        6280 FORMATICALLY REGRESSION COEFFICIENTS: 17
 1899
                    / INDEX/,10X,/COBF/,10X,/SDEU/,5%/1T-URLUE//
            1
                    / ----/,10%,/---/,10%,/----/,5%,/-----//
         6216 FORMAT (1X, 15, 1X, F13, 7, 1X, F13, 7, 1X, F11, 3)
  8882
        6220 FORMAT( ' // INTERCEPT = ',F11.3)
  8983
        6238 FORMATY // MULTIPLE CORRELATION COEFFICIENT = 1/F6.01
0084
        6231 FORMAT( ' '/ EXPLAINED UPRIANCE = ( F6.3)
  6665
        6240 FORMATO MY STANDARD EPROR OF ESTIMATE = 1/F11.3) 75
  0096
       6250 FORMATO 1/1 AMPLYSTS OF UPPTIANCE TABLE 1/2
```

### Subroutine LWRITE (Concluded)

- FORTRAN IV HB1A-1 FRI 61-HBV-81 62:21:47

PARE (SS

6278 FURNITC' RES': 4X/F12.3/1X/F6.8/1X/F13.5/

### MLREG1.FOR

Multiple Linear Regression				
Purpose: Performs a multiple linear regression.  Explanation:  Enter # of observations = total # of observations  Enter # of variables = total # of independent and dependent  variables in your file  Enter # of independent variables = total # you are going to  use for this regression  Indices of independent variables = the numbers that correspond  to the independent variables in your file				
Computer Output User Input				
	• Run MLREG1			
Pause Insert data disc in unit one (DK:) and hit return	⟨CR⟩			
Name the input file (Assign)	*DK:F20935.DAT <cr></cr>			
Enter number of observations(I)	180 〈CR〉			
Enter number of variables (I)	16 〈CR〉			

### MLREG1.FOR (Concluded)

Multiple Linear Regression				
Computer Output	User Input			
Enter number of independent variables (I)	3 (CR)			
Enter indices of independent variables (1914)	8, 10, 15 〈CR〉			
Enter index of dependent (I)	16			
	〈CR〉			
Enter the output unit number	6			
(6 = LP, 7 = TT)	(CR)			
Enter the input format specification (20A2)	(16F20.10)			
Specification (20A2)	(CR)			

<sup>1</sup>Whenever formats are indicated, parentheses must be used.

```
NATIPLE LINEAR REGRESSION
NUMBER OF OBSERVATIONS = 174
NUMBER OF UPRLABLES: 16
NUMBER OF "INDEPENDENT VERTIFIEDS = 2
INDICES OF INDEPENDENT VARIABLES:
  8 10
INDEX: OF DEPENDENT VERMELE: 16
MEAN'S AND STANDARD DEVIATIONS OF INDEPENDENT WASHALES:
                        -:0€0
            MERNI
INDEX
    8
            0.287
                       0.232
```

NEARL OF DEPENDENT MARIABLE = 8.46 STANDARD DEVIATION OF DEPENDENT URRIFIELE = 0.381

0.425

9.M OF CROSS PRODUCTS: HOEN HOEN JMP 8 10 12,439

6.472

10

3 Iť. 15.316 13.340 10 16.

INDEPENDENT VARIABLE (ORRELATIONS)

INDEX INDEX CORR

> 6.532 10

CORRELATIONS WITH DEPENDENT URRIABLE: 16

MDEX COPP

> ટ A. 79. 10 0.674

9.M OF SQUARES:

INDE: વાલ 14,777 9 10 31.1% 16 25,180

REGRESSION COEFFICIENTS:

COFF SDEV THINKLE INDEX 0.0678284 8 0.7941886 11.845 0.2866121 0.0461322 6.213 18

INTERCEPT = 0.043

MA TIPLE CURRELATION COEFFICIENT = 0.837

### Example Output MLREG1 (Concluded)

EXPLAINED UNRIANCE = 0.761

STANDARD	ERROR OF	ESTIMATE	=	0.210
----------	----------	----------	---	-------

NOPLYSIS OF SOURCE	URRIFANCE SUMSO	TRELE OF	MERISO	F-FATIO
REG	17.569	2.	8.78448	199,983
RES	7.511	171.	0. <b>04</b> 393	

130 CONTINUE CINTIALIZE POPULATION TOTALS PMT0T=0.0 PMT0T2=0.0 PUTOT=0.8 PVT0T2=8.8 C INTIALIZE STATISTIC MATRIX

6939

66461

(44)

```
PRGE 002
                         FRI 68-119Y-81 08:38:48
KRIPPH III
               H01A-1
            DO 200 1=1.1HDD1M
(643
(4144
            STM (1,1)=8.6
6645
            STAT (1,2)=0.8
        200 CONTINUE
16:46
      C SHIFT BIS TO WORKING VECTOR
            DO 500 1=1.HSHF1
6647
6948
            INDEX=0
             JSTRET=(1-1)+LENSHF+1
(4444
             JSTOP=JSTART+1HDD1M-1
8050
            DO 300 JEJSTART, JSTOP
(# · 1
 6652
             INDEX=INDEX+1
 6653
             IB(INDEX)=IBTS(J)
 6614
             1156
         300 CONTINUE
       C PERFORM FAST HADRIARD TRANSFORM
 (657
             CALL HADARD
       C GATHER STATISTICAL DATA
 6659
             DO 400 J=1, IHDDIM
             STAT(J,1)=STAT(J,1)+FLOAT(IB(J))
 (KF) 4
              STRT(J,2)=STRT(J,2)+FLORT(IB(J)++2)
 (K+.C)
 664.1
         400 CONTINUE
         500 CONTINUE
  66.2
        C (UTPUT THE SOLUTION FOR THE CURRENT BOOLERN TIME SECUENCE
              URITE (7,7168) IREAD, LENRIS, TONE, TZERO, THOOTH, ASHIFT, LENSIF, ASHF1
  (494.7
              KRITE(2,2100) TREAD, LENGTS, TONE, TZERO, THOOTM, MEHTET, LENGTE, MENET
  0.4
  655
              00 688 I=1 IHD0IM
              SMERN#STAT(1,1)/RSSIZE
  6644
              IF(NSHF1.LE.2) SUPR=0.0
  (KY-7
              (44.4
                                  /(RSSIZE-1.0)
              URITE(7,7170) 1,STAT(1,1),STAT(1,2),STERN,SURR
  6671
              URITE(2,2110) 1, SHEAN, SURR
  6672
              PHTOT=PHTOT+STEPH
  0073
  9974
              PHTOT2=PHTOT2+SPERIHSPERI
              PUTOT=PUTOT+SUPP
  6975
              PUTOT2=PUTOT2+9UPR+9UPR
  6676
          689 CONTINUE
  6977
  0078
              PHIEFH PHITOT /PSIZE
  6673
              PMUMP:=(PMTOT2-(PMTOT*PMTOT/PSIZE))/PSIZE
              PUREPHIPUTOT /PSIZE
  884 W.
               PUUR=(PUTOT2-(PUTOT*PUTOT/PSI在))/PSI在
   (4.51)
               URITE(7,7188) PHYEAU PHUAR, PUMERU PUMP.
  8882
               URITE(2,2128) PHIERLIPHURR, PURERLIPUURR
  (#C)
         C READ NEXT BOOLEAN TIME SEQUENCE
               60 TO 109
   9994
         CEND OF PROGRAM
   ALC:
           700 CONTINE
               STOP LEND OF PROCESHI HADARD.FOR L
   UCO?
   6007
          1100 FORMAT (12811)
   (Correct
         2189 F0F99T(815)
   Sec.
          2110 FOPHAT (13,2F9,3)
   (84.40)
          2120 FOPPHT (4F13.3)
   (674)
          5100 FORMAT(17)
   8547
          7130 FORMAT (1 MRYE THE INPUT FILE (ASSIGN)(1)
                                                                      82
```

```
H01A-1
```

FRI 08-101-81 00:38:48

PRIE 883

```
7110 FORMATY! NAME THE RESULT FILE (RESIGN)!/)
      7126 FORPRT (* WHRT POWER OF 2 EOURLS HRDAPPRD SIZE (I)*)
6655
      7130 FORMAT (" WHAT IS LENGTH OF INPUT BOOLEAN TIME SERVENCE (1)")
      7148 FORMATIC! HOW MANY SHIFTS ARE TO BE PERFORMED ON SAMPLE (1)!)
1996
0097
      7158 FORMAT (* MART IS THE LENGTH OF A SHIFT (I)*)
      7160 FORMAT (* FAST HADAMARD TRANSFORM*/
                  1 INPUT BTS = 1317/
                  1 LENGTH OF BTS = 15.17/
           2
                  1 NUMBER OF ONES IN BIS = 1517/
                  1 MATBER OF ZEROS IN BTS = 1/17/
                   1 HPDRYPPD SIZE = 1517/
                   " IRPREP OF SHIFTS =1,17/
                   * LENGTH OF SHIFT = 1/17/
                   1 SPYPLE SIZE = 1517/
                   * HPENYSPEY*,7X; *SUNX*,5X; *SUNXSQ*,7X; *NERN*,3X;
                    "(MP) FREE!
                   11
       7170 FOPPHT(1 (54X)47)2(4X)F18.8),2(2X)F9.3))
 1099
       7188 FORMATO: POPULATION STATISTICS*/
8186
            1
                   " Hear! Of Mears =
                                           15F13.37
                   * UPPTANCE OF MEANS =
                                           1/F13.3/
                   / MERK OF UPPIRMOES =
                                           %F13.3/
                   ' VPPIANCE OF URRIANCES = '\(\text{F13.3}\)
 Bigi
            EHD
```

FRI 00-MPN-81 00:39:09

PROE 061

```
SUBROUTINE HPOMPO
BOG!
      C PURPOSE IS TO PERFORM A FAST HADAVARD TRANSFORM
      C ON AN IMPUT BOOLEAN TIME SEQUENCE
            COMMON MBLOCK/ IB. JSTOP. ISTOP
8002
            DIMENSION IA(128), IB(128)
(66)
8884
            00 500 1=1,15T0P
6865
            INDEX=1
BURN
            J1NC=2**1
            ISTOP=2**(1-1)
8667
999
            DO 388 J=1, JSTOP, JINC
8009
            DO 100 K=1,KSTOP
0010
            L0C1=J+K-1
6911
            LOC2=LOC1+KSTOP
0012
             IR(INDEX)=IB(LOC1)+IB(LOC2)
 0013
             INDEX=INDEX+1
 6614
         100 CONTINUE
 0015
            DO 200 K=1.KSTOP
             L0C1=J+K-1
 6916
             L002=L001+KST0P
 6917
 6018
             IA(INDEX)=IB(L0C1)-IB(L0C2)
 6019
             INDEX=INDEX+1
 6920
         200 CONTINUE
 6321
         300 CONTINUE
 6022
             00 400 J=1, J5TOP
 0023
             IB(J)=IA(J)
 1024
         400 CONTINUE
 6625
         500 CONTINUE
 6926
             RETURN
 6027
             Đ₽
```

PRIZE 001

```
TORTION 30
       C PROGRAM "RLOGIC, FOR"
       C CREATED FOR THE HILLA SYSTEM: 8-JAN-80
       C PURPOSE: ACCEPT A FILE OF BOOLEAN VARIABLES
       C FIND A LOGICAL GOAL VARIABLE. COUNT THE NUMBER
       C OF OCCURENCES FOR ALL POSSIBLE COMBINATIONS
       COF THE MINTERNS. COMPUTE THE PROBABILITIES
        CIFER THE EVENTS OF (1) MINTERN TRUE
       ( (2) GOPL TRUE GIVEN MINTERM TRUE
        C (3) GOOK FALSE GIVEN MINTERM TRUE.
        CITEST FOR PURE LOGIC FUNCTION. WRITE OUTPUT
        C TO TERMINAL. WRITE OUTPUT FILE OF RESULTS.
        CITHIS PROGRAM IS A PART OF THE RELATIVE
        CLOGIC PROCEDURE FOR THE "MAP" SYSTEM.
 (##1!
              CONTON /RECORD / PROBUKCONTUKURLUEUPRBADJU
                               IBSPAP, LOGIC, MAPR, IPURE, LENGTH, ASIZE
 (WHY)
              DINENSION PROB(1024,3), KOUNT (1024,3), KUPLUE (1024), IRSHIP (10)
  MACS.
              PRUSE "INSERT INPUT DATA DISC IN UNIT ONE (DK:) AND HIT RETURN"
        C NEME INPUT FILE
96614
              WRITE(7,7100)
  MMS.
              CALL RSSIGN(1) (15-1) (RD0(5) (ND(5)1)
        C NEWE OUTPUT FILE
 PERY.
              WITE(7,7110)
  MM17
              CALL RESIGN(2) (1)-1/(NEW()/NC()1)
        ( ENTER NUMBER OF UNRIABLES IN SAMPLE
  MARCIES
              WRITE(7,7120)
  MAK "
               READ(5,5100) HARR
        CENTER THE COEFFICIENT ADJUSTMENT FACTOR
  MEST CS
              IRITE(7,7138)
  95111
               READ(5,5110) PRRADJ
        CHITIFILIZE UPRIBALES
  RE!
               IPURE=0
  96:17
               HEIZE=0
  19914
               LENGTH=2**NURR
  6615
               DO 100 1=1,1024
  Mit S
               KOUNT (1,1)=0
  CHII!
               KTUNT (1,2)=0
  00:18
               KDUNT (1,3)=0
  (619
               PROB([,1)=0.8
  881761
               PROB(1,2)=0.0
   0021
               PROB(1,3)=0.0
  0077
               KUPLUE(1)=-1
  (60%)
               IF(1.GT.10) GO TO 100
   8625
               185PMP(1)=0
   6026
           100 CONTINUE
         C READ ONE RECORD AND COUNT
   6627
           200 CONTINUE
               READ(1,1000,END=300) (185APP(1),1=1,NUAR),LOGIC
   8028
   (9779
               H51ZE=H51ZE+1
   PETC!
               CALL BYALLY
   9001
               GO TO 200
         COMPUTE PROBABILITIES
                                                                        85
   (607)
           300 CONTINUE
   (46.77)
               CALL RLPROB
         CITEST FOR PURITY OF LOGIC FUNCTION
```

FR1 88-HRY-81 88:29:49

H019-1

# Program Listing RLOGIC (Concluded)

PAGE 082

```
CALL TSTPUR
61.4
      C WRITE TO TERMINAL DEVICE
            CALL TURITE
      C WRITE TO FILE DEVICE
0076
            PRUSE "INSERT OUTPUT DATA DISC IN UNIT ONE (DK:) AND HIT RETURN"
3137
            CALL FURITE
            STOP 'END OF PROGRAM RLOGIC.FOR'
93<u>38</u>.
0039
      1969 FORMAT (1111)
       5100 FORMAT(17)
9949
1941
       5110 FORMAT(F13.7)
2042
       7180 FORMAT(" NAME THE IMPUT FILE (ASSIGNO")
8643 7110 FORMAT(" NAME THE RESULT FILE (RESIGNO")
%44
       7120 FORMAT (" ENTER NUMBER OF UPRIABLES FOR PROPLEM (1)")
       7130 FORMATICA ENTER PROBABILITY FACTOR FOR 🔧
8945
                     "COEFFICIENT ADJUSTMENT (R)")
1946
            ÐĐ
```

FRI 88-1914-81 88:29:49

- FORTRAN 1U

HB1A-1

# Subroutine BTALLY

4.	FORTRAN	IV H81A-1	FRI	<del>88-181/-8</del> 1 <del>88:3</del> 6	3194	PROE 901
Ĩ	REART!	SIEROUTINE	BTALLY	•		
1.	· c	PURPOSE IS TO	COMPUTE	LOCATION FOR A	DDITION OF	
		CUPPENT SAPPLE				
ś	6665	COMMON /BL	0CK1/ P	ROB, KOUNT, KURLU	E,PRBADJ,	
Í		1	1	BSAMP, LOGIC, NVA	R, IPURE, LENGTH, NSIZ	Ŧ
_	<b>89</b> 83	DIMENSION	PROB(18	24,3),KOUNT(102	4,3),KUPLUE(1024),1	BSRIP(10)
7	<b>9994</b>	INDEX=1				
1	(April	DO 100 1=1	NURR			
ė	8996	IF(IBSAMP(	1).EQ.1	) INDEX=INDEX+2	**(]- <u>1</u> )	
	6663	100 CONTINUE				
1	<b>ACCUS</b>	KOUNT ( INDE	X-1)=K(	MINT (INDEX: 1)+1		
1	0010	IF(LOGIC.E	Q.1) K	UNT(INDEX,2)=KD	UNT (INDEX) 2)+1	
	<b>6912</b>	IF(LOGIC.)	€.1) K(	OUNT (INDEX: 3)=KO	UNT(INDEX;3)+1	
	0914	return				
	0015	EMD				

### Subroutine RLPROB

PROE 001

<b>GENERAL</b>	SURPOUT HE PLANCE
	C PURPOSE IS TO COMPUTE THE PROBABILITIES FOR LOGIC FUNCTION
<b>66</b> 552	COPPON ZBLOCKIZ PROBJKOUNTJKUPLUE, PRBPDJ.
	1 1859PP JLOGIC JNURR JIPLPE JLENGTH INSIZE
(66)	DIPENSION PROB(1024,3), MOUNT(1024,3), MUPLUE(1024), 1858PP(10)
<b>(CE14</b>	PSIZE=FLORT(PSIZE)
(KIN)	DO 100 1=1,LERGTH
West.	IF(KOUNT(1,1),LE.0) GO TO 100
<b>(4.46</b> 43)	COUNT1=FLORT(KOUNT(],1))
1666	COUNT2=FLORT(KOUNT(1,2))
6616	COUNTS=FLORT(KOUNT(1,3))
66111	PROB(1,1)=000NT1/RS1ZE
6012	PROB(1,2)=CONT2/CONT)
<b>(6)</b>	PROB(1,3)=COUNT3/COUNT)
0614	100 CONTINE
1615	RETURN
<b>6</b> 616	EIO

FRI 08-10Y-81 00:30:16

HOIH-1

FORTRAN 10

#### Subroutine TSTPUR

	FORTRAN	IV.	H01A-1	FRI <del>00-MNY-81 00:30:29</del>	PRGE 901
	-2661	9	BROUTINE T	STPUR	
	CI	PLPPO	E IS TO TE	ST FOR THE PURITY OF THE COMPUT	TED LOGIC FUNCTION
	8662	α	MMON /BLOC	K1/ PROB.KOUNT.KVALUE.PRBADJ.	
		3		1950MP JLOGIC JAMPR J IPURE J LED	IGTH, NEIZE
	8883	D)	MENSION PR	10B(1024,3),KOUNT(1024,3),KUPLUE	(1024), IRSPIP(10)
	8994	D	100 I=1.I	ENGTH	
	8005	31	(KOUNT(L)	1).LE.0) KURLUE(1)=0	
•	<u> </u>	n	(PROB(1,2)	).GE.PRRACUT) KURLUE(1)=1	
	6003	11	(PROB(1,3)	GE.PRBROJ) KVALUE(1)=0	
	0011	11	(KUPLLE(1)	.LT.0) GO TO 100	
	6613	1	PURE=1PURE	<b>+1</b>	
	8814	100 C	NTIME		
	8915	R	ETURN		
	0016	E	ND .		

#### Subroutine TWRITE

```
PROE 001
                          FRI 08-MPY-81 00:30:41
FORTER! IV
               H019-1
[1717]
            SUPPOSITIVE TWELTE
      C PURPOSE IS TO WRITE TO TERMINAL
00002
            CONTION / PLOCK ! / PROB. KOUNT. KUNLUE, PRBNDJ.
                            IBSPIP, LOGIC, NUPR, IPURE, LENGTH, NSIZE
SCC.
            DIMENSION PROB(1024,3), KOUNT(1024,3), KUPLUE(1024), IBSAMP(10)
EFF.14
            HPITE(7,7100) HUPR, LENGTH, PROPROJ
(KIKE
            IPITE(7,7110) NSIZE, IPIRE
(ACTOR)
            1917E(7,7120)
8397
            00 100 I=1 LENSTH
6963
            MRITE(7,7139) LKOURT(L1),PROB(L1),KURLUE(I),
            1
                          KOUNT(1,2), PROB(1,2), KOUNT(1,3), PROB(1,3)
8669
         THE CONTINUE
8010
            PETLEN
0011
       7188 FORMATIC RELATIVE BOOLEAN LOGIC SEARCH FOR A LOGICIAL 1
                     "FUNCTION OF THE MINTERMS"/
                    1 NUMBER OF UPRIFICES = 1,17/
                    イザのSEP OF MINTERNS = 15.17/
                    1 HOLLISTMENT FROTOR = 1/F9.5)
 8012 7118 FORMATC' MASSER OF SAMPLES = 1.17/
                    1 PUPITY =
                                          1/17/
                    ^{\prime} PURTTY SHOULD EQUAL THE NURSER OF MINTERNS ^{\prime}
                    (FOR MIRE LOSION)
 6613 7126 FORMATCA ASTUMBLICADU AND MODULATA 550 AMPROBA.
                        6% 1158F1-4% 1100W111,
                        500 (TYP08 0.4%) (FOOLNT 0.5%) (FPR08/7
                    €Vn'----, 47, '-----,
                        5,0/----/,4%/----/,5%/----//
 0014 7100 FORMATKY (20010-2003) 200F8.304% 1603W1702WF8.30
                        37.17.27 50.37
             1
 8915
             EID
```

GLOSSARY OF TERMS

#### Subroutine FWRITE

FORTINH IV H01A-1 FRI 09-1191'-81 00:30:53 PRE ON SURROUTINE FURITE C PURPOSE IS TO WRITE CUTPUT FILE CORPORT /BLOCKI/ PROBLECTART.KURLLE.PRESDJ. IBSATY.LOGIC.HURR. IPURE, LEIGTH. NSIZE DINENSION PROB(1624-3).http://(1024-3).http://(1024-3).http:// WRITE(2,2100) HATE, LEHGTH, PREPOJ, NSIZE, IPARE DO 108 I=1.LENSTH URITE(2,2110) LACUST(L.1), PROB(L.1), RUPLIE(1), KOURTI (1,2), PROB(1,2), KOURTI (1,3), PROB(1,3) 100 CONTINUE RETURN 2109 FORIAT (217,F13,7,217) 2118 FORFAT (217,F8.3,13,17,F8.3,17,F8.3) 8011 EDD

#### GLOSSARY OF TERMS

L	(CR)	Carriage Return
	LP	Line Printer
1	TT	Teletype
	(1)	Integer
1 2	(R)	Real number. A decimal point must be used with real numbers.
E	NTER ERMEAN	Enter Mean of Error
Lan	ERRDEV	Deviation of Error
	RTMEAN	Mean Error Rate
	RTDEV	Deviation Error Rate
0	FORMAT	Whenever a format is called for, parentheses must be used.
	•	
u <sub>.</sub>		92